

City of Boston Town of Brookline

Phase 1 Muddy River Flood Control, Water Quality and Habitat Enhancement, and Historic Preservation Project

Volume 5 Appendix F Sediment Characterization Appendix G Water Quality

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Appendices

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Appendix



APPENDIX F SEDIMENT CHARACTERIZATION

APPENDIXI

SEDIMENT CHARACTERIZATION

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Section 1 Introduction

1.1 Rationale and Approach

This report has been prepared to present the findings of sediment sampling conducted along the Muddy River system. The characterization of sediments is part of the Muddy River Restoration Project that could potentially include the dredging of the river, modifications to culverts, and other measures to address the following objectives:

- mitigate flooding;
- improve upon water quality;
- enhance the aquatic and riparian habitat;
- preserve landscape and historic resources; and
- institute best management practices in the Muddy River watershed.

This work is one element of the extensive field analyses necessary to support the Environmental Impact Report/Environmental Assessment and engineering design for the Project. A locus plan that illustrates the Muddy River system is provided as Figure F1-1. From its source at Jamaica Pond, the Muddy River flows north through three interconnected ponds (i.e., Ward's, Willow and Leverett Pond), from Leverett Pond to Park Drive (referred to as the Riverway), from Park Drive to Ipswich Street (referred to as the Back Bay Fens), and the last reach that extends to the Charles River (referred to as the Charlesgate Area). For the purpose of this report, the results and discussions for each of the areas will begin with the further-most downstream location of the Charlesgate area to the upstream location of Ward's Pond. The sampling plan used to conduct the field characterization was based on the following:

- the results of previous investigations;
- visual observations of the Muddy River system; and
- the locations of drains, discharge points and above-ground deposits (e.g., sand bars) expected to be dredged that are located along the Muddy River.

Sample locations were identified along the proposed channel centerline to obtain representative samples and to define stratification within the material to be dredged. The number of samples proposed for each area shown on Figure F1-1 was based on the testing frequency required by the landfill disposal facilities. The sample locations, frequency of testing and the parameters for analysis were provided in a Sediment Quality Testing Plan that has been reviewed and approved by the Department of Environmental Protection (DEP). The Sediment Quality Testing Plan and related DEP correspondence is provided as Attachment F-1.

The data collected from the field investigation, combined with the results of the previous environmental studies, have been used to determine the suitability of dredged materials for various disposal options. In addition, the data collected may be







used to assess the environmental quality of the native sediment that would remain after dredging.

1.2 Program Overview

The field characterization program was conducted from July 18, 2000 through October 19, 2000, with the intent of obtaining information to define subsurface conditions at the locations where dredging is proposed to take place. Sediment samples were collected from 139 locations along the Muddy River system. Listed below, by area, is the total number of locations sampled.

Charlesgate Area	6 locations
Back Bay Fens	60 locations
Riverway	36 locations
Leverett Pond	26 locations
Willow Pond	5 locations
Ward's Pond	6 locations

The proposed number of samples and the parameters for analysis for each area that was presented in the sampling plan are listed in Table F1-1. Up to three stratified samples which best represented specific strata were collected at each location. Two samples were collected from the fill material, with the first sample taken from the surface of the sediment layer and the next sample collected from an interval based on visual or olfactory observations. A third sample was collected from the native sediments underlying the fill materials.

Geotek Engineering, Inc. (Geotek) of Framingham, Massachusetts was subcontracted to perform drilling services. The sampling was conducted from a barge, by boat or on foot depending on the depth of water and the sediment characteristics. Sample locations were surveyed by Global Positioning System (GPS) using a Trimble Asset Surveyor.

1.3 Field Investigation Procedures

Samples were collected from a tripod-mounted, engine driven hollow stem auger using standard drilling techniques. The samples were collected at 2-ft depth intervals to native material. Depending on the area, native material was encountered from 6 to 10 feet below the top of the sediment layer.

Boring logs were prepared for each sediment sample location, with the following information recorded:

Sampling personnel;

SAMPLING FREQUENCY AND PROPOSED PARAMETERS FOR ANALYSIS

Muddy River Restoration Project

Area of Study	Proposed Excavation Volume	Existing Samples	Proposed Samples	Sampling Frequency (samples/yd³)	Analyses
Ward's Pond	19,340 yd³	6	15 (odd-numbered) 496	496	VPH, EPH, RCRA 8 metals, PCBs, pesticides, TCLP, Reactivity, Conductance, and Sieve & Hydrometer
			15 (even-numbered)		VPH, EPH, RCRA 8 metals, TCLP
Willow Pond	9,670 yd³	9	7 (odd-numbered)	484	VPH, EPH, RCRA 8 metals, PCBs, pesticides, TCLP, Reactivity, Conductance, and Sieve & Hydrometer
			7 (even-numbered)		VPH, EPH, RCRA 8 metals, TCLP
Leverett Pond	21,788 yd³	∞	39 (odd-numbered) 253	253	VPH, EPH, RCRA 8 metals, PCBs, pesticides, TCLP, Reactivity, Conductance, and Sieve & Hydrometer
			39 (even-numbered)		VPH, EPH, RCRA 8 metals, TCLP
Riverway	30,000 yd³	6	60 (odd-numbered) 238	238	VPH, EPH, RCRA 8 metals, PCBs, pesticides, TCLP, Reactivity, Conductance, and Sieve & Hydrometer
			57 (even-numbered)		VPH, EPH, RCRA 8 metals, TCLP
Back Bay Fens Area (includes Charlesgate Area)	· 91,102 yd³	12	198 . 434	434	VPH, EPH, RCRA 8 metals, PCBs, pesticides, TCLP, Reactivity, Conductance, and Sieve & Hydrometer
			20 composite samples		paint filter liquid test

NOTE:

TCLP testing will be conducted on samples where any organic or inorganic contaminant exceeds the theoretical TCLP threshold.

- Weather conditions;
- Date and time of field activities;
- Sample method;
- Position and depth of sample;
- Depth of overlying water;
- Field screening measurements;
- Instrumentation used and any deviations from the proposed methodology;
- Visual/olfactory observations; and
- Physical description of the material and geologic classification.

The logs for each sediment location are provided in Attachment F-2.

Samples were analyzed for the parameters listed on Table F1-1. Samples with concentrations above which a 100% leaching of the metal/organic constituent in the sample would exceed the regulatory level in the sample leachate were also subjected to the TCLP analysis. Representative samples from each area were composited and subjected to the paint filter test. Several samples were analyzed for nitrates and total phosphorus as well. Quality Assurance/Quality Control (QA/QC) samples, that included field blanks and duplicate samples, were also collected. Samples were stored in coolers on ice and either picked up on the day of sampling or the following day. The samples were submitted for analysis to the Toxikon Corporation Laboratory or AMRO Environmental Laboratories Corporation.

The results of the field characterization, including the results of previous investigations conducted by others, are discussed in Section 2 by area in terms of the types and concentrations of target compounds. Section 3 provides an evaluation of the environmental quality of the sediments and identifies the expected acceptable disposal options for the dredged sediment.



Section 2 Analytical Results and Discussion

2.1 Introduction

This section of the report presents the analytical results obtained from the sampling program conducted by CDM as well as a summary of previous sampling events conducted by others. The results are primarily discussed in terms of concentrations of constituents compared with the DEP Lined and Unlined Landfill Reuse Allowable Contaminant Levels for Soil Criteria. The results of CDM's investigation are provided in Subsection 2.3, and include a brief discussion of the physical sediment characteristics observed for each area. The results are also discussed in terms of correlation with previous environmental studies and to possible sources of contamination.

2.2 Previous Field Investigations

Several environmental investigations have been conducted on sediments in the Muddy River. A summary of the results from the following investigations is provided in this subsection:

- Boston Water and Sewer Commission, 1992;
- U.S. Army Corps of Engineers, 1992;
- U.S. Army Corps of Engineers, 1995;
- U.S. Army Corps of Engineers, 1996;
- U.S. Geologic Survey, 1998;
- Town of Brookline, 1998;
- U.S. Army Corps of Engineers, 2000; and
- CDM, 2000.

Overall the results showed elevated levels of lead, mercury, petroleum hydrocarbons, and polycyclic aromatic hydrocarbons (PAHs). Typically the concentrations of the analytes were higher in the top sediment layer with the highest concentrations collected in samples from the Riverway and the Back Bay Fens. As expected, the highest concentrations were found near drain discharge points. The results of these investigations are discussed in the following paragraphs. The results of samples analyzed for total petroleum hydrocarbons (TPH) by Method 418.1 have not been compared to the DEP criteria since the naturally occurring substances and fine particulate that are generally found in sediment present interference to the TPH method that could result in positive biased values. Note that the sampling program conducted by CDM replaced the TPH method with the extractable petroleum hydrocarbons (EPH) and volatile petroleum hydrocarbons (VPH) analyses. Tabulated analytical results and figures that show sample locations for each of the investigations discussed are provided in Attachment F-3.

The results for sediment samples collected from the Muddy River conduit are presented in a report prepared for the Boston Water and Sewer Commission (Anderson-Nichols and Co., Inc., 1992). Sediment samples were collected from nine locations along the conduit beginning at the Brookline Avenue Gate House and concluding at Deerfield Street near the Charles River. The average depth of the sediment in the conduit was approximately three feet.

The samples were tested for leachability of organic and inorganic parameters as measured by the Toxicity Characteristic Leaching Procedure (TCLP). The TCLP results for the organic constituents were all below the detection limits. The results of the TCLP testing on metals showed concentrations of lead above the federal regulatory limit of 5 mg/L. The samples above 5 mg/L were collected upstream of the Massachusetts Turnpike, at the Kenmore Square siphon structure and at Deerfield Street near Kenmore Square.

Samples were also analyzed for petroleum hydrocarbons, oil and grease, polychlorinated biphenyls (PCBs), reactivity (cyanide and sulfide), and the paint filter test. The concentrations of petroleum hydrocarbons ranged from 220 mg/kg at the Brookline Avenue Gatehouse to 69,500 mg/kg under the Massachusetts Turnpike. The results of the oil and grease analysis were similar in range to the results reported for petroleum hydrocarbons. The results of the PCB analysis were all below 2 mg/kg. Reactive cyanide was found above the regulatory limit of 250 mg/kg in three of the nine samples analyzed. These samples were collected at the Brookline Avenue Gatehouse (660 mg/kg), upstream of the Massachusetts Turnpike (320 mg/kg) and under the Massachusetts Turnpike (328 mg/kg). The paint filter test yielded free liquid in each of the samples.

In June of 1992, sediment samples were collected along the Riverway and the Back Bay Fens by the U.S. Army Corps of Engineers (ACOE). Sediment cores were taken to a depth of 2 feet. Samples were analyzed for metals, petroleum hydrocarbons and PCBs. Select samples were also analyzed for semivolatile (SVOC) and volatile organic compounds (VOCs). Elevated levels of PAHs (total PAHs of 264 mg/kg) were found in a sample collected near the Tannery Brook drain. Concentrations of PCBs above 2 mg/kg were found in samples collected near the Longwood Avenue drain (3.6 mg/kg) and near Boston Gatehouse No. 2 (2.6 mg/kg). The results of the SVOC analysis showed low levels of dichlorobenzenes (0.1 to 0.32 mg/kg), methylphenols (0.1 to 0.44 mg/kg) and phthalates (0.09 to 20 mg/kg). The results of the VOC analysis showed trace to low levels of acetone, carbon disulfide, methylene chloride, and 2-butanone (all compounds that can be attributed to laboratory artifacts), as well as toluene and ortho-xylene.

Lead at concentrations above 1,000 mg/kg was found at five of the 15 locations sampled. The highest concentration of lead at 2,100 mg/kg was found in a sample collected near the Longwood Avenue drain. Elevated concentrations of mercury (3.2 mg/kg) were also found in this sample. The highest concentration of mercury was found in a sample collected near the Emmanuel College drain overflow at a concentration of 6.4 mg/kg.

In 1995, five samples were collected by the ACOE from Leverett Pond, the Riverway and the Back Bay Fens. Samples were analyzed for petroleum hydrocarbons, metals, PAHs, PCBs, pesticides, and total organic carbon (TOC). Total PAHs were found above the DEP landfill reuse levels at each of the locations except in the sample collected from the Back Bay Fens. The total PAH concentrations ranged from 83 mg/kg to 240 mg/kg. The highest concentration of PAHs was found downstream of the Tannery Brook drain. Lead was found at a concentration of 1,600 mg/kg in a sample collected near the inlet of Leverett Pond. The results of the other analyses were below the DEP landfill reuse levels.

In 1996, seven sediment core samples were collected by the ACOE. The cores extended to depths of 40 to 60 inches and a sample was collected from the top and the bottom of each core. The samples were analyzed for total petroleum hydrocarbons, PCBs, cyanide, and lead. The analytical results showed levels of lead and PCBs in excess of the DEP levels for reuse at landfills. Lead was found above 1,000 mg/kg in samples collected from four of the seven locations sampled. The concentration of lead in the top samples ranged from 82 mg/kg to 2,000 mg/kg, and the bottom samples ranged from 220 mg/kg to 1,600 mg/kg. The TCLP results from two sample locations in the Back Bay Fens were above the regulatory level of 5 mg/L at concentrations of 5.4 mg/L and 6 mg/L. Typically the concentrations of the analytes tested were higher in the top 24-inch samples and in samples collected from the Back Bay Fens area.

In 1998, the U.S. Geologic Survey published screening level data on the sediments from the Back Bay Fens, Riverway and Leverett Pond. Sediment samples were collected from 15 locations and analyzed for total petroleum hydrocarbons, PAH compounds, PCBs, pesticides, total organic carbon, metals, TCLP metals, grain size, and percent moisture. The samples were collected at depths ranging from 6 inches to 78 inches. The results were similar to those observed during the 1996 investigation. The concentrations were generally higher in samples collected from the Back Bay Fens area and lower in concentration in samples collected from the Riverway section. The data indicated elevated levels of petroleum hydrocarbons, lead, PAHs, and PCBs.

In 1998, the Town of Brookline collected sediment and surface water samples in response to a release of petroleum hydrocarbons to Willow Pond. Sediment samples were collected from the rim of the Pond on the right side, left side and outlet of the Pond, and surface water samples were collected from near the inlet, middle and outlet of the Pond. The samples were analyzed for EPH. Elevated concentrations of the aliphatic hydrocarbon ranges were found in the sample collected from the outlet of Willow Pond. The highest concentrations of PAHs (total PAHs 16.3 mg/kg) were found in a sample collected from a location near the outlet to the Pond. The results for samples collected from surface water were below the detection limits. Willow Pond is a DEP listed site (RTN 3-3224) and response activities are on going by the Town of Brookline to address the recurring sheen and petroleum odors.

On April 24, 2000, the ACOE collected sediment samples at three locations from Ward's Pond and at two locations from Willow Pond. Samples were collected from

two depth intervals at each location. The samples collected were analyzed for metals, including the TCLP analysis for lead, PAHs, PCBs, TPH, and pesticides. The results of samples collected from Ward's Pond are generally lower compared to the other areas within the Muddy River system, and were below the DEP landfill reuse levels.

The results of samples collected from Willow Pond generally showed higher concentrations in the samples collected at depth. The total of the individual PAH compounds is above 100 mg/kg in the deeper samples at both locations. The distribution of the individual PAH compounds is similar in each of the four samples. Sheen and petroleum odors were noted during sample collection. Excluding PAHs, the concentrations of the other parameters analyzed were below the DEP landfill reuse levels.

2.3 Data Presentation and Discussion

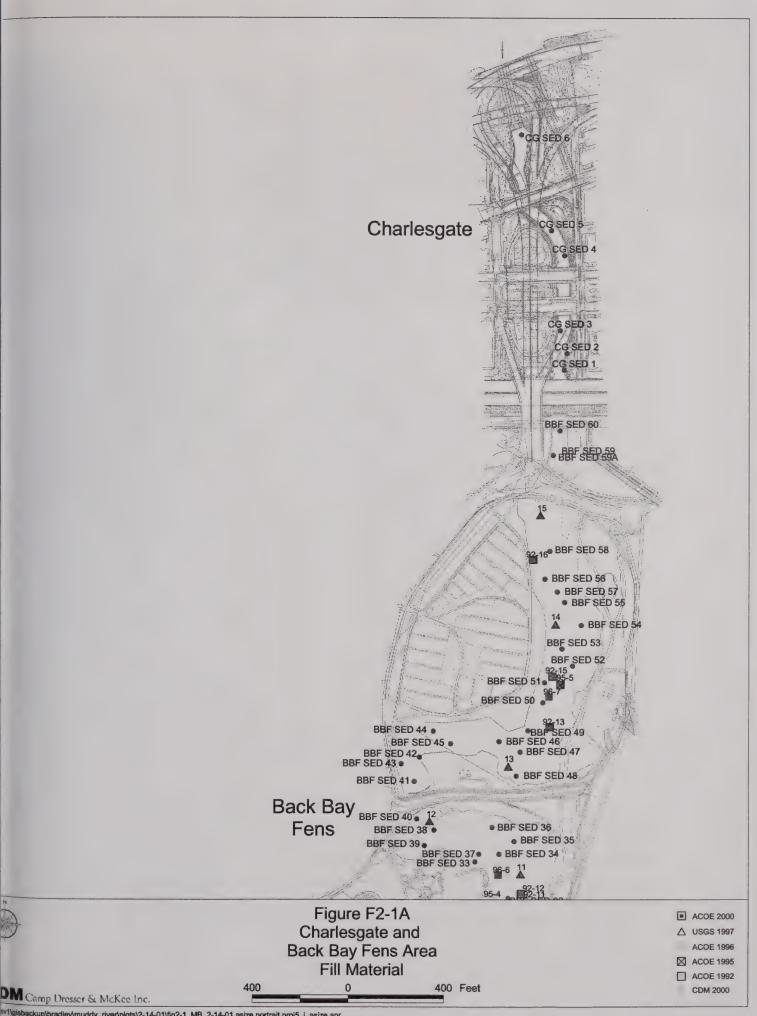
This subsection presents the results for sediment samples collected by CDM in support of the Boston Parks and Recreation Commission and Town of Brookline's effort to complete the Environmental Impact Report. Results are discussed by area. CDM evaluated the data based on four possible disposal options of In-State for reuse at unlined and lined landfills, Out-of-State landfills or at a hazardous waste landfill facility. For each area, two figures are provided, one that shows the locations of samples collected from fill material and one for the native material. Sample locations from previous investigations are also included on the figures. Summary tables for the target compounds are provided in Attachment F-4. A list of the samples, depth collected and the parameters analyzed is also provided in Attachment F-4.

2.3.1 Charlesgate Area Sediment Characteristics

The borings advanced in the Charlesgate area were generally completed to a depth of ten feet below the top of sediment or upon encountering native material. The material encountered during the advancement of these borings consisted of varying thickness (4 to 8 ft) of a soft, black, organic silt layer, intermixed with fine to coarse sand and gravel. Small amounts of brick, wood, glass, and concrete were also observed within the organic silt layer. The native material underlying the organic silt layer was typically observed at four to eight feet below the top of the sediment. Native material consists of grey, loose to medium dense, fine to medium sand with varying amounts of fine gravel and silt. Traces of shell fragments were also observed within the native material. Petroleum odors were noted at several depth intervals at boring location CG-SED-4.

Sediment Analytical Results

Collectively, the analytical results of the sampling conducted in the Charlesgate area were lower in concentration than the other areas. The results for samples collected from this area were all below the DEP landfill reuse levels. The locations of the Charlesgate area samples are shown on Figure F2-1A for the samples of fill and



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Figure F2-1B for the native material. The results are summarized in Table F2-1. The concentration of PAHs ranged from below detectable levels to 29 mg/kg at sample location CG-SED-6. Elevated concentrations of VPH were found in the 0 to 2 ft depth interval at CG-SED-4 (11.5 mg/kg) and CG-SED-6 (8.2 mg/kg). Petroleum odors were noted during sample collection at location CG-SED-4, however, none of the target VPH compounds (benzene, toluene, ethylbenzene, xylenes, and methyltertbutyl ether) were detected. The total of the PCB aroclors was well below 2 mg/kg, and ranged in concentration from below detectable levels to 0.325 mg/kg.

The concentration of lead ranged from below detectable levels to 250 mg/kg. The results from TCLP tests run on three samples were all below the regulatory limit of 5 mg/L. Samples were collected from the Charlesgate area and composited into a sample to be tested for the paint filter test. The result showed that free liquids were present.

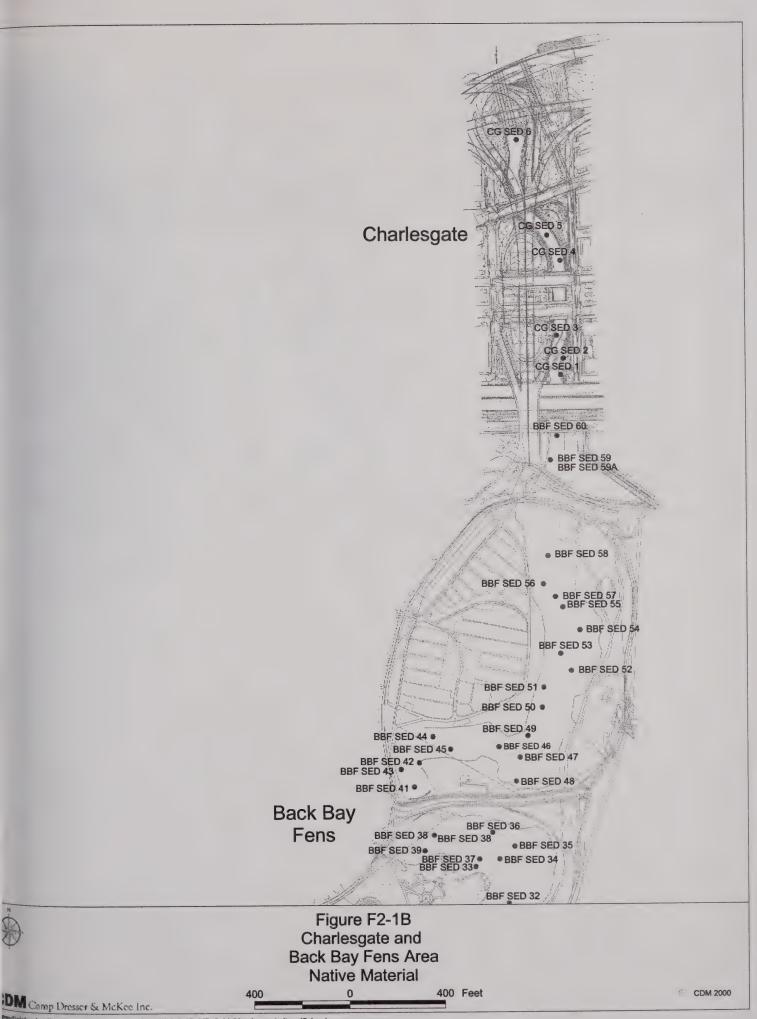
2.3.2 Back Bay Fens Sediment Characteristics

Back Bay Fens borings were completed to a maximum depth of fourteen feet below the top of sediment or upon encountering native material. The general stratigraphy encountered during the advancement of the Back Bay Fens borings consisted of a varying thickness (2 to 12 ft) of a soft, black, organic silt layer, intermixed with fine to coarse sand and gravel. Organic material, consisting of decayed plant matter, sticks, root mass, and peat, was observed in the upper limits (2 to 4 ft) of sediment at several boring locations. Small amounts of brick, wood, glass, and concrete were also observed within the silt layer at several boring locations. The southern limits of the Fens exhibited shallow deposits (0 to 4 ft) of sediment comprised of coarse, grained sand and gravel with little organic material. Within the northern two thirds of the Fens the depth of the sediment increased to an average depth of seven feet below the top of the sediment. Typically, the deeper deposits of sediment contained finer grained sand and increased organic silt. The native material underlying the organic silt layer was typically observed at 2 to 12 ft below the top of the sediment. Native material consists of grey, loose to dense, fine to medium sand with varying amounts of fine gravel and silt. Traces of shell fragments and peat were also observed within the native material. Petroleum odors were noted at several boring locations within the Back Bay Fens Area. At locations BBF-SED-7, -13, -21, -25, and -48, petroleum odors were noted in surface samples collected from 0 to 2 feet below the top of the sediment. Petroleum odors were noted in samples collected down to eight feet below the top of the sediment from locations BBF-SED-54, -55, -56, -57, -58, -59, and -60.

Sediment Analytical Results

The locations for the Back Bay Fens area are shown on Figures F2-1A,B through F2-3A,B for fill and native material. The results are summarized in Table F2-2. Several locations from the Agassiz Bridge to Ipswich Street (BBF-SED-45 through BBF-SED-58) exceeded the federal regulatory level for TCLP lead. The concentrations are consistent and range in concentration from 5 mg/L to 6.1 mg/L at location BBF-SED-55. This sample was collected from the 6 to 8 ft depth interval and was the only





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TABLE F2-1 SUMMARY OF ANALYTICAL RESULTS - CHARLESGATE AREA

Muddy River Restoration Project

Contaminant	No. of	Concen	tration ¹	DEP Landfill Reuse Levels ¹		No. of Sample	es Exceeding	
	Samples	Minimum	Maximum	Unlined	Lined	Unlined	Unlined Lined	
Total Arsenic	17	Not Do	etected	40	40	No Exce	edances	
Total Cadmium	17	ND	0.93	30	80	No Exce	edances	
Total Chromium	17	5.7	68	1000	1000	No Exce	edances	
Total Lead	17	ND	250	1000	2000	No Exceedances		
TCLP Lead (mg/L)	3	Not D	etected	NA	NA	No Exceedances		
Total Mercury	17	ND	0.48	10	10	No Exceedances		
Total EPH	17	ND	130	2500	5000	No Exceedances		
Total PCBs	13	ND	0.33	<2	<2	No Exceedances		
Total PAHs	17	ND	- 29	100	100	No Exceedances		
Total VPH	17	ND	11.5	NA	NA	No Exceedances		
Total VPH Target	17	ND	1	4	10	No Exceedances		
Reactive Sulfide	13	ND	450	500		No Exceedances		
Reactive Cyanide	13	Not D	etected	250		No Exceedances		
рН	13	6.4	9	2 < pH < 12.5 No Exceedances		edances		
Conductivity	13	80	1500	4000 umhos/cm	8000 umhos/cm	No Exceedances		

All results are reported in mg/kg unless otherwise noted.



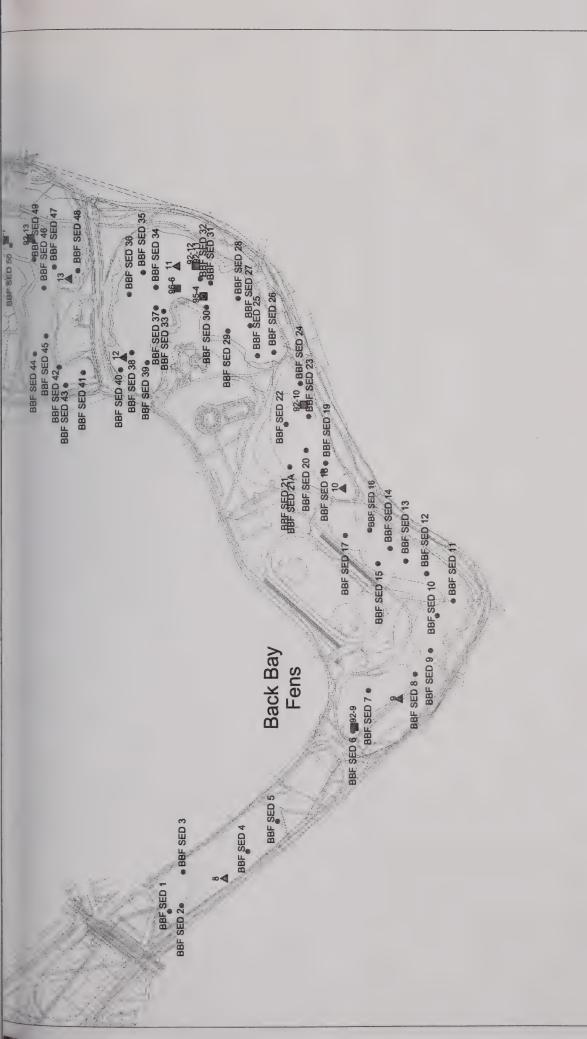


Figure F2-2A Back Bay Fens Area Fill Material

S ACOE 1996

△ USGS 1997

☑ ACOE 1995 ☐ ACOE 1992

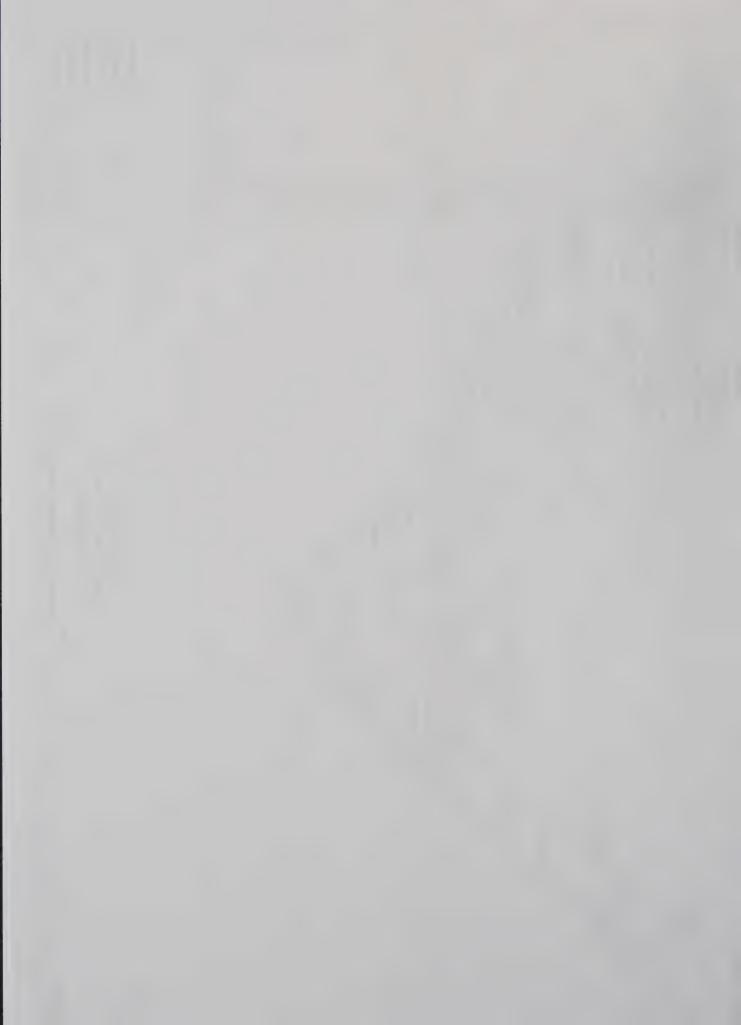
CDM 2000

■ ACOE 2000

400 Feet

400

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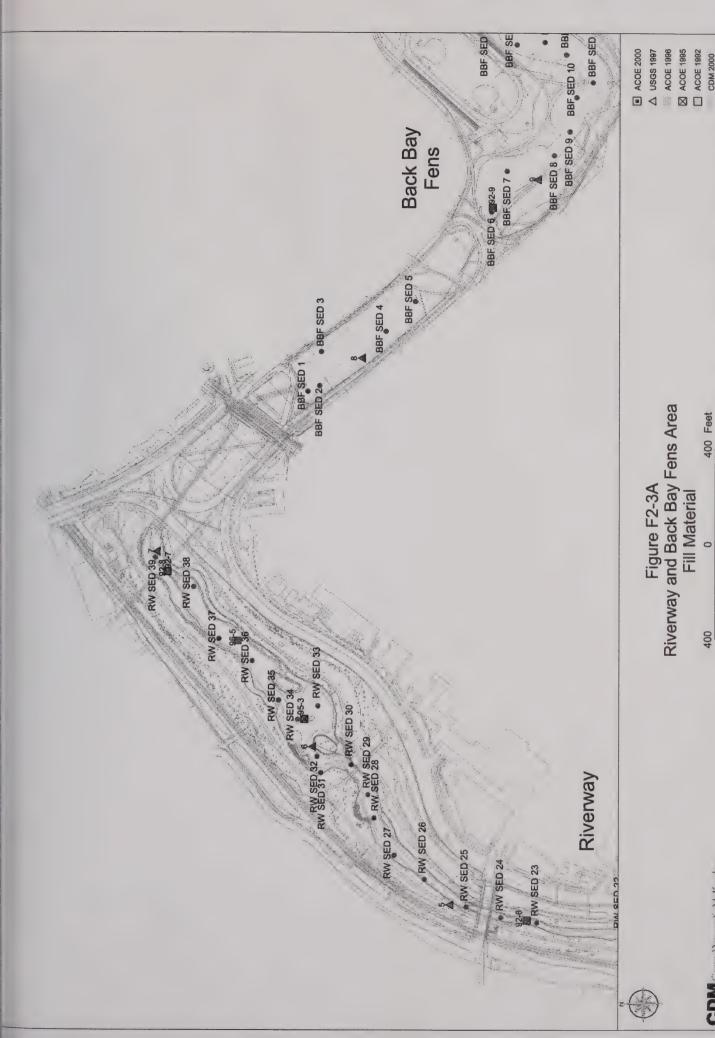
Figure F2-2B Back Bay Fens Area Native Material 400

400 Feet

CDM 2000

CDM Camp Dresser & McKee Inc.





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CDM Camp Dresser & McKee Inc.

CDM 2000



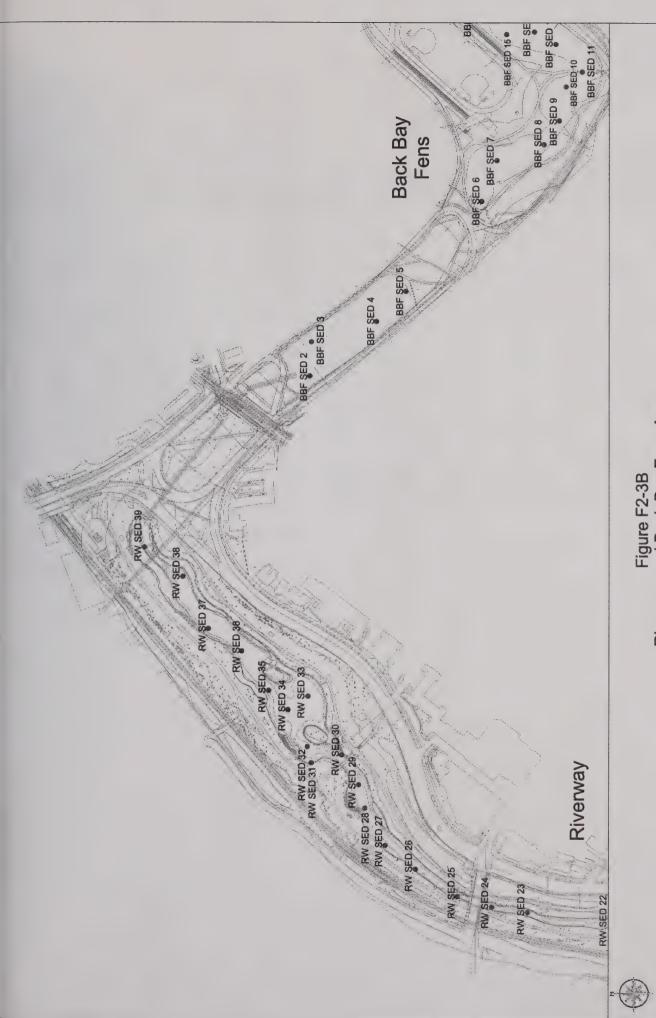


Figure F2-3B Riverway and Back Bay Fens Area Native Material

400 Feet

400

CDM 2000

CDM Camp Dresser & McKee Inc.

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TABLE F2-2 SUMMARY OF ANALYTICAL RESULTS - BACK BAY FENS

Contaminant	No. of Samples	Concentration DEP Landfill Reuse Level Minimum Maximum Unlined Line		Reuse Levels ¹ Lined	No. of Samples Exceeding Unlined Lined		
						Ommod	Billion
Total Arsenic	169	ND	110	40	40	13	13
Total Cadmium	169	ND	23	30	80	No Exceedances	
Total Chromium	169	7.3	420	1000	1000	No Exceedances	
Total Lead	169	ND	2100	1000	2000	33	2
TCLP Lead (mg/L)	82	ND	6.1	NA	NA	9 Exceeds RCRA ²	
Total Mercury	169	ND	8.9	10	10	No Exceedances	
Total EPH	169	ND	2530	2500	5000	. 2	None
Total PCBs	162	ND	7.6	<2	<2	16	16
Total PAHs	169	ND	1510	100	100	4	4
Total VPH	169	ND	80	NA	NA	No Exceedances	
Total VPH Target	169	ND	32.1	4	10	1	1
Reactive Sulfide	162	ND	1700	500		15	15
Reactive Cyanide	162	Not D	etected	250		No Exceedances	
рН	162	5.7	8	2 < pH < 12.5		No Exceedances	
Conductivity	162	69	7200	4000 umhos/cm	8000 umhos/cm	15	None

¹ All results are reported in mg/kg unless otherwise noted.

² Concentration above the federal regulatory limit of 5 mg/L.



sample of native material that exceeded the regulatory limit. The TCLP result from the surficial sample at this location was 5.5 mg/L.

The other constituent of significance that was detected consistently is arsenic. Concentrations of arsenic above the DEP landfill reuse level of 40 mg/kg were found in samples collected downstream from the Emmanual College Drain overflow to Boston Gatehouse No. 1 (BBF-SED-7 through BBF-SED-27). The concentrations ranged from 40 mg/kg to 110 mg/kg at BBF-SED-10. This sample was tested for TCLP and the arsenic result was below the detection limit.

The results of the VPH scan correlated fairly well with observations (i.e., petroleum odors) noted during sample collection. The C_9 to C_{12} aliphatic hydrocarbons were found more frequently than the other carbon ranges and typically at higher concentrations. Toluene was the only target compound found, and at several locations. The concentration of toluene ranged from 0.083 mg/kg to 0.68 mg/kg in samples collected from the 0 to 2 ft and the 2 to 4 ft depth intervals. The results of the EPH scan were below the DEP landfill reuse levels except at location BBF-SED-58. Samples collected from the 0 to 2 ft and 2 to 4 ft depth intervals had concentrations of 2,510 mg/kg and 2,530 mg/kg, respectively. Elevated levels of target PAH compounds were found in a sample collected of native material at location BBF-SED-17. The total PAH concentration was 1,510 mg/kg in the 6 to 8 ft depth interval. Total PAHs above the DEP landfill reuse level of 100 mg/kg were found at locations BBF-SED-31 at a concentration of 138 mg/kg, BBF-SED-37 at a concentration of 145 mg/kg and BBF-SED-57 at a concentration of 112 mg/kg. These samples were collected from the fill material.

Concentrations of PCBs above 2 mg/kg were found in most of the samples collected from the Boston Gatehouse No. 1 to Ipswich Street. The concentrations in these samples ranged from 2 mg/kg to 7.6 mg/kg. Only aroclor 1254 and 1260 were found above detectable levels in the samples analyzed. The results of the pesticide analysis show that 4,4′-DDD, 4,4′-DDE and 4,4′-DDT were detected most frequently. The concentrations found were typically below 1 mg/kg with the following exceptions: BBF-SED-27 (4,4′-DDD at 1.2 mg/kg); BBF-SED-43 (4,4′-DDD at 1.5 mg/kg); BBF-SED-50 (4,4′-DDD at 1.8 mg/kg); and BBF-SED-58 (4,4′-DDD at 2.3 mg/kg and 4,4′-DDT at 1.5 mg/kg).

Select samples were also analyzed for nitrates and total phosphorus. Nitrates were not detected and total phosphorus was either not detected or found at low levels.

Reactive sulfide above the regulatory limit was found in 15 samples ranging in concentration from 510 mg/kg to 1,700 mg/kg. Samples from five of the locations also had TCLP lead above the regulatory limit. Eight representative samples were submitted for the paint filter test. The results showed that five of the samples did not have free liquids present and three of the samples did contain free liquids.

2.3.3 Riverway

Sediment Characteristics

The Riverway borings were completed to a maximum depth of sixteen feet below the top of sediment or upon encountering native material. The general stratigraphy encountered during the advancement of the Riverway borings consisted of varying thickness (2 to 10 ft) of a soft, black, organic silt layer, intermixed with fine to coarse sand and gravel. Organic material was typically observed in the upper limits (0 to 2 ft) of sediment, however, this material was observed to depths of eight feet at the southern limits of the Riverway area. Small amounts of brick, wood, glass and concrete were also observed within the silt layer at several boring locations. The native material underlying the silt layer was typically observed at two to ten feet below the top of the sediment. Native material consists of black-grey, medium dense to very dense, fine to medium sand with varying amounts of fine gravel, and silt. Small amounts of silty clay and peat were observed within the native material at the northern limits of the Riverway Area. Petroleum odors were noted in samples collected from a few boring locations within the Riverway Area, specifically at boring locations RW-SED-1, -4 and -9. These samples were collected in areas of miscellaneous fill or organic material. Samples were not recovered from three proposed locations due to low recovery volumes of sediment material that consisted of mostly gravel. The locations were downstream of the section where the Riverway crosses Brookline Avenue.

Sediment Analytical Results

The results of the VPH scan show similar concentrations of the C9 to C10 aromatic hydrocarbons in samples collected from the southernmost section of the Riverway (i.e., sample locations RW-SED-01 through RW-SED-09). Concentrations in the 0 to 2 ft depth interval ranged from 14 mg/kg to 42 mg/kg with most of the samples at a concentration of 23 mg/kg. The target compounds toluene, xylenes and naphthalene were also consistently detected in these samples. Naphthalene was the only compound detected at a concentration above 1 mg/kg. The results of samples collected further downstream primarily showed low levels of naphthalene. These results are consistent with the results of the EPH scan as several locations had EPH and target PAH concentrations above the DEP landfill reuse levels. Samples of fill material at locations RW-SED-04, RW-SED-09, RW-SED-19, RW-SED-21, RW-SED-27, and RW-SED-33 through RW-SED-37 contained EPH at concentrations above 2,500 mg/kg. Samples collected from nine locations contained total PAH compounds above 100 mg/kg. The highest results were collected from location RW-SED-19 at the 0 to 2 ft and the 2 to 4 ft depth intervals at concentrations of 372 mg/kg and 399 mg/kg, respectively.

There were no detectable levels of PCBs found in samples collected from the Riverway. For the pesticide scan, 4,4'-DDD was the only compound detected except for one sample that showed 4,4'-DDT. The concentrations of 4,4'-DDD ranged from below detectable levels to 4.4 mg/kg in a sample of fill material collected at location RW-SED-35.

Select samples were also analyzed for nitrates and total phosphorus. Nitrates were not detected in the samples analyzed. The results of the total phosphorus show elevated levels in most of the samples analyzed. The concentrations of total phosphorus range from 262 mg/kg to 3,180 mg/kg. The concentrations generally increased with depth.

Several samples had concentrations of arsenic above the DEP landfill reuse level. These locations include RW-SED-01 (45 mg/kg), RW-SED-03 (89 mg/kg), RW-SED-26 (40 mg/kg), RW-SED-28 (47 mg/kg at the 0 to 2 ft interval and 50 mg/kg at the 2 to 4 ft interval), and RW-SED-34 (65 mg/kg). Only seven samples had concentrations of lead at or above 1,000 mg/kg. None of the samples analyzed exceeded the regulatory limit for TCLP lead. Reactive cyanide and sulfide were not detected above their respective federal regulatory limits. Three samples were tested for the paint filter test. The results showed that there was no free liquid present in the samples. The sample locations for the Riverway are shown on Figures F2-3A,B and F2-4A,B for the fill and native material. The results are summarized in Table F2-3.

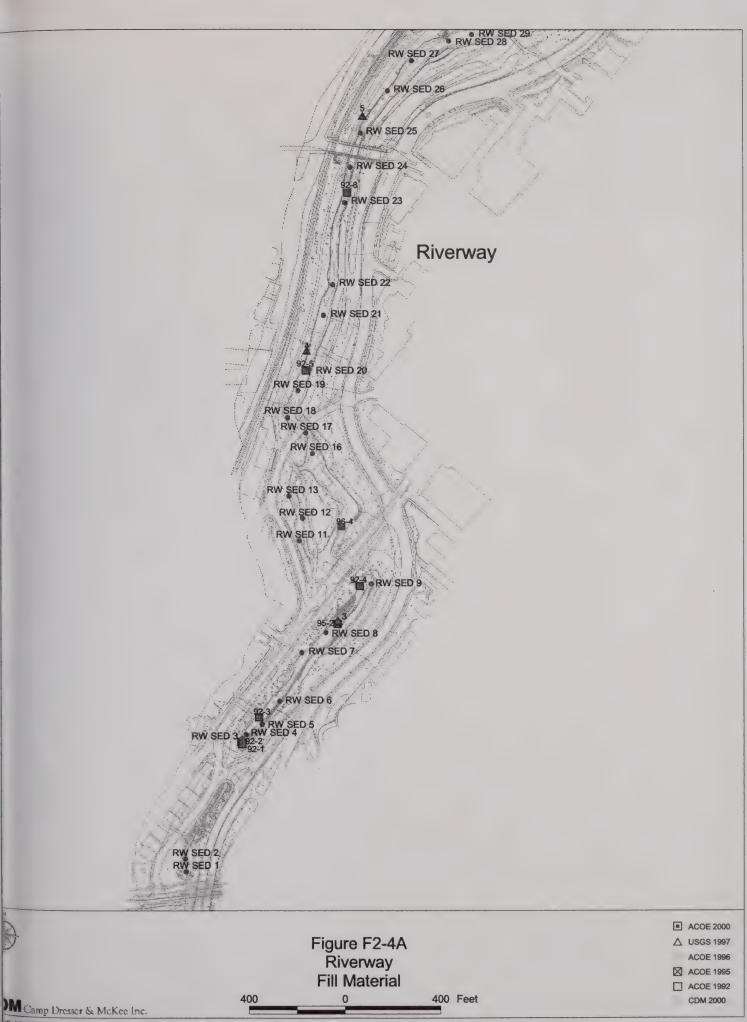
2.3.4 Leverett Pond Sediment Characteristics

The Leverett Pond borings were completed to a maximum depth of fourteen feet below the top of sediment or upon encountering native material. The general stratigraphy encountered during the advancement of the Leverett Pond borings consisted of varying thickness (2 to 8 ft) of a soft, black, organic silt, intermixed with fine to coarse sand and gravel. Pockets of organic material were observed in the upper limits (0 to 4 ft) of sediment at a few boring locations. Trace amounts of brick were also observed within the silt layer at two boring locations. The native material underlying the silt layer was typically observed at two to eight feet below the top of the sediment. Native material consists of grey, loose to medium dense, fine to medium sand with varying amounts of fine gravel and silt. The exception to the above native description is within the southern portion of Leverett Pond where the native material contained soft, grey clay with varying amounts of silt. Pockets of peat were observed within the native material at the northern limits of the Pond. Petroleum odors were present at one boring location (LP-SED-26) which appears to be associated with a pocket of organic material in that area.

Sediment Analytical Results

The C₉ to C₁₂ aliphatic hydrocarbons of the VPH scan were found more frequently than the other carbon ranges and typically at higher concentrations. The concentrations of the carbon ranges generally decreased with depth. The concentrations of VPH were higher in samples collected from the center to the outlet of Leverett Pond. Naphthalene and toluene were found at low levels in the surficial samples collected from locations LP-SED-22 and LP-SED-24. The results for the EPH scan were all below the DEP landfill reuse level of 2,500 mg/kg except at LP-SED-17 that contained EPH at 2,500 mg/kg in the 0 to 2 ft sample. Total PAHs above 100 mg/kg were found at several locations along Leverett Pond. The results above 100 mg/kg in samples collected from 0 to 2 ft included LP-SED-2 at 131 mg/kg, LP-SED-9





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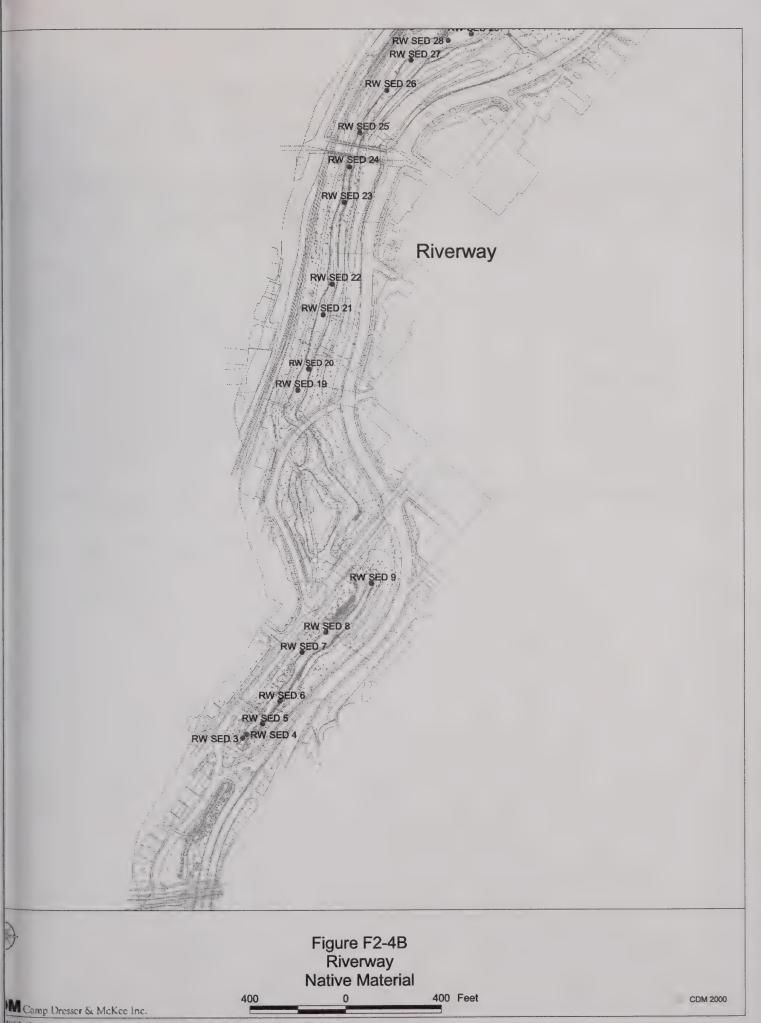




TABLE F2-3 SUMMARY OF ANALYTICAL RESULTS - RIVERWAY

Contaminant	No. of	Concentration ¹		DEP Landfill Reuse Levels 1		No. of Samples Exceeding	
	Samples	Minimum	Maximum	Unlined	Lined	Unlined	Lined
Total Arsenic	82	ND	89	40	40	6	6
Total Cadmium	82	ND	17	30	80	No Exceedances	
Total Chromium	82	ND	190	1000	1000	No Exce	eedances
Total Lead	82	ND	2000	1000	2000	7	1
TCLP Lead (mg/L)	48	ND	3.3	NA	NA	No Exceedances	
Total Mercury	82	ND	3.3	10	10	No Exceedances	
Total EPH	82	ND	7700	2500	5000	15	3
Total PCBs	46	Not D	etected	<2	<2	No Exceedances	
Total PAHs	82	ND	399	100	100	13	13
Total VPH	82	ND	46	NA	NA	No Exceedances	
Total VPH Target	82	ND	2.4	4	10	No Exceedances	
Reactive Sulfide	47	Not D	etected	500 No Exceedanc		eedances	
Reactive Cyanide	47	ND	7	250		No Exceedances	
рН	38	5.5	8.4	2 < pH < 12.5		No Exceedances	
Conductivity	44	7	270	4000 umhos/cm 8000 umhos/cm		No Exceedances	

All results are reported in mg/kg unless otherwise noted.



at 107 mg/kg, LP-SED-12 at 112 mg/kg, LP-SED-20 at 114 mg/kg, and LP-SED-24 at 155 mg/kg. Samples collected from LP-SED-20 at the 2 to 4 ft interval, LP-SED-21 and LP-SED-24 at the 4 to 6 ft interval also were above 100 mg/kg at concentrations of 131 mg/kg, 120 mg/kg and 133 mg/kg, respectively.

PCBs were detected in several samples from Leverett Pond; however, the concentrations were below the 2 mg/kg limit. As found with the other areas sampled, only aroclor 1254 and aroclor 1260 were found above detectable levels. The results for pesticides show that 4,4'-DDD, 4,4'-DDE and 4,4'-DDT were found in samples of the fill material in most of the samples analyzed. The highest concentration of 8.3 mg/kg was found at location LP-SED-25 in the sample collected from native material at a depth of 12 to 14 feet. Other locations with elevated concentrations include LP-SED-7 (5.4 mg/kg), LP-SED-11 (2.8 mg/kg) and LP-SED-17 (3.1 mg/kg). The concentrations of pesticides found at Leverett Pond were the highest in comparison to the other study areas.

The results for the metals showed elevated levels of lead and arsenic at several locations. Locations where samples were above 1,000 mg/kg total lead include LP-SED-4, LP-SED-11, LP-SED-13, LP-SED-16, LP-SED-17, LP-SED-18, and LP-SED-26. These locations extend the length of Leverett Pond and are generally centered within the pond. None of the samples analyzed exceeded the regulatory limit for TCLP lead. The locations of samples where arsenic was above 40 mg/kg include LP-SED-2, LP-SED-11, LP-SED-12, and LP-SED-13. The concentrations ranged from 42 mg/kg to 51 mg/kg.

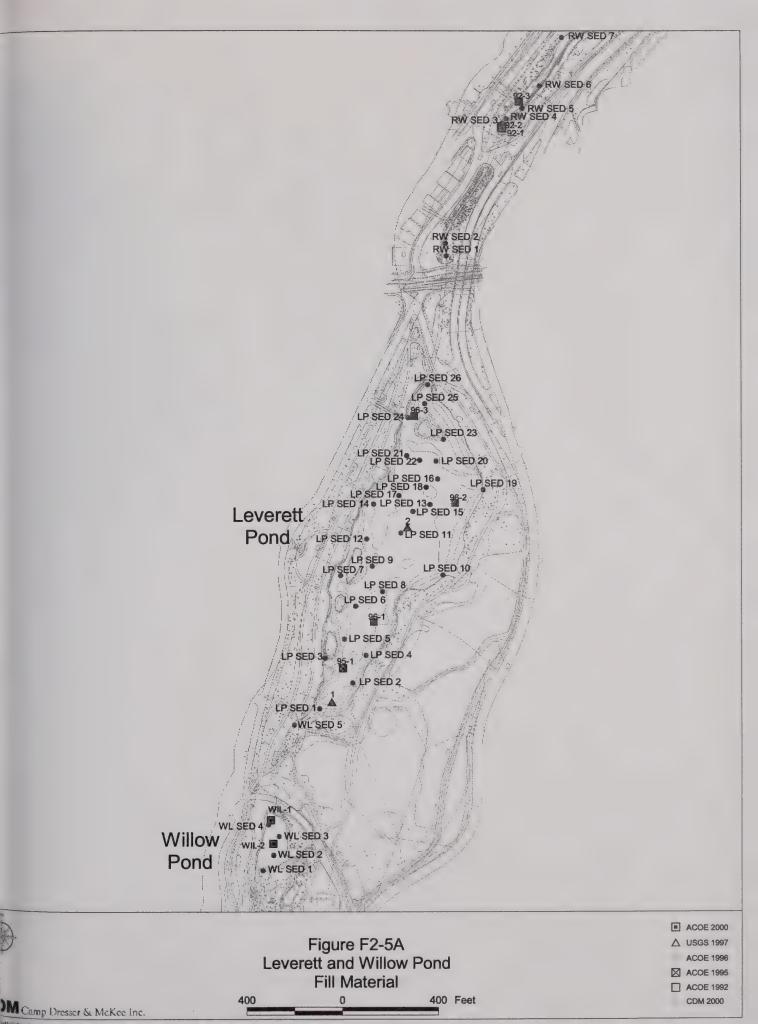
Samples were also analyzed for reactive cyanide and sulfide. Reactive cyanides were not detected in any of the samples analyzed. Reactive sulfide was found above the 500 mg/kg regulatory limit in the sample collected at LP-SED-25 from 0 to 2 ft at a concentration of 1,300 mg/kg. Two samples were collected for analysis of the paint filter test. The results showed that free liquids were not present. The locations of samples collected at Leverett Pond are shown on Figures F2-5A,B for the fill and native material and the sample results are summarized in Table F2-4.

2.3.5 Willow Pond

Sediment Characteristics

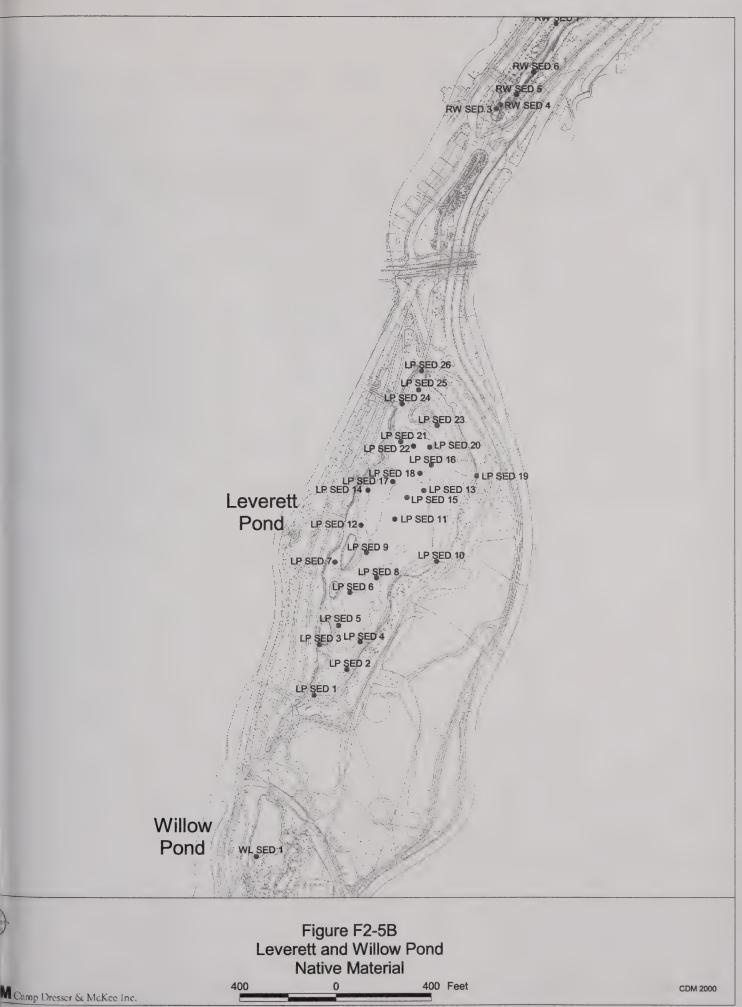
Five borings were advanced in Willow Pond; however, due to the soft sediment only two of the locations could be advanced by drill rig. At the remaining locations, only surficial sediment samples were collected. The following geologic description therefore is based on observations recorded at WL-SED-1 and WL-SED-5. These borings were completed to a maximum depth of twelve feet below the top of sediment or upon encountering native material. The general stratigraphy encountered during the advancement of the borings consisted of varying thickness (0 to 8 ft) of a soft, black, organic silt layer, intermixed with fine to coarse sand and gravel. Trace amounts of brick, wood, glass, and asphalt were also observed at boring location WL-SED-5. The native material underlying the silt layer was typically observed at two to eight feet below the top of the sediment. The native material consists of tan, medium dense sand and silt. Petroleum odors were observed during





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TABLE F2-4 SUMMARY OF ANALYTICAL RESULTS - LEVERETT POND

Contaminant	No. of	Concentration ¹		DEP Landfill Reuse Levels ¹		No. of Samples Exceeding	
	Samples	Minimum	Maximum	Unlined	Lined	Unlined	Lined
			-				
Total Arsenic	67	ND	51	40	40	5	5
Total Cadmium	67	ND	6.6	30	80	No Exceedances	
Total Chromium	67	5	400	1000	1000	No Exceedances	
Total Lead	67	5.6	1700	1000	2000	9	None
TCLP Lead (mg/L)	30	ND	4	NA	NA	No Exceedances	
Total Mercury	67	ND	1.7	10	10	No Exceedances	
Total EPH	67	ND	2500	2500	5000	1	None
Total PCBs	33	ND	1.07	<2	<2	No Exceedances	
Total PAHs	67	ND	187	100	100	8	8
Total VPH	67	ND	32	NA	NA	No Exceedances	
Total VPH Target	67	ND	1.1	4	10	No Exceedances	
Reactive Sulfide	33	ND	1300	500		1	1
Reactive Cyanide	33	Not D	etected	250		No Exceedances	
рН	33	5.1	7.7	2 < pH < 12.5		No Exceedances	
Conductivity	33	73	1500	4000 umhos/cm 8000 umhos/cm		No Exceedances	

¹ All results are reported in mg/kg unless otherwise noted.



the installation of boring WL-SED-5 in samples from the top of the sediment layer to a depth of eight feet.

Sediment Analytical Results

The results for the VPH scan showed detectable levels of C_5 to C_8 and C_9 to C_{12} aliphatic hydrocarbons in samples of fill and native material collected at locations WL-SED-1 and WL-SED-5. At locations WL-SED-2, -3 and -4, samples were only collected from the 0 to 2 ft depth interval. The results of these samples showed elevated levels of the C_9 to C_{10} aromatic hydrocarbons and the C_9 to C_{12} aliphatic hydrocarbons. The total carbon range concentrations were 118 mg/kg in sample WL-SED-02, 51 mg/kg in sample WL-SED-3 and 69 mg/kg in sample WL-SED-4. Individual target compounds were not detected in any of the samples analyzed.

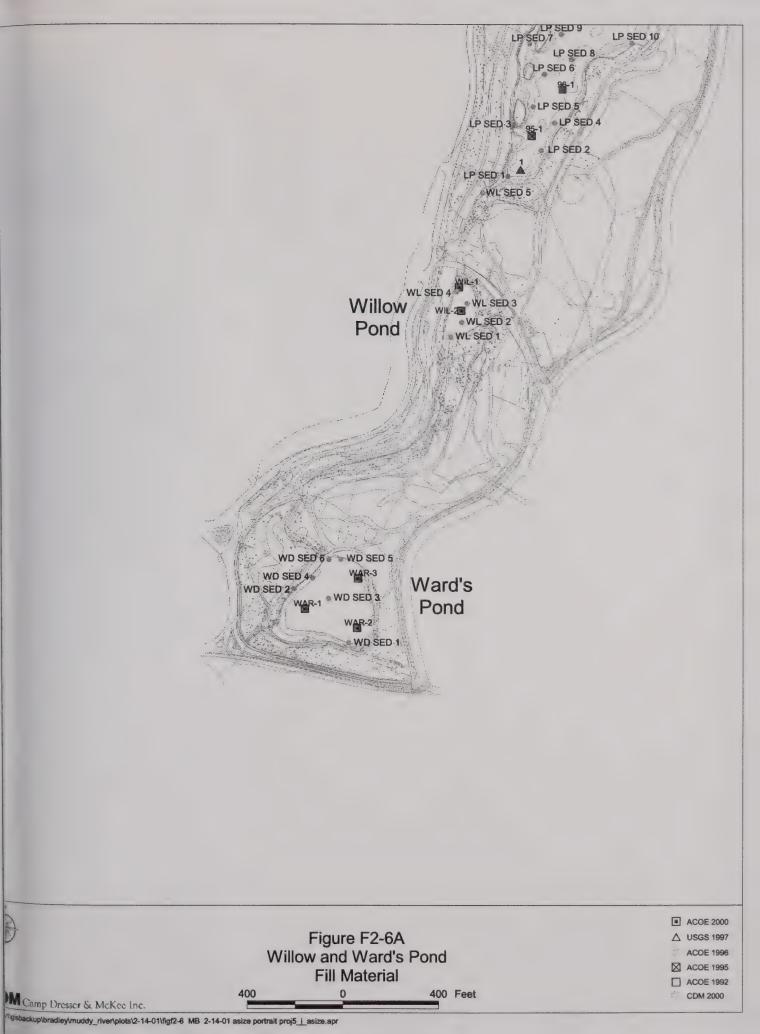
Based on the VPH results of samples collected from locations WL-SED-1 and WL-SED-5, that noted that non-fuel hydrocarbons were contributing to the C_5 to C_8 aliphatic range, samples collected from WL-SED-2, -3 and -4 were also analyzed for VOCs by Method 8260. The VOC compounds detected in sample WL-SED-2 include meta-, para-xylenes at 0.12 mg/kg, meta-propylbenzene at 0.11 mg/kg, 1,3,5-trimethylbenzene at 0.25 mg/kg, 1,2,4-trimethylbenzene at 0.53 mg/kg and secbutylbenzene at 0.13 mg/kg. The compounds detected in sample WL-SED-3 include toluene at 0.18 mg/kg and 1,2,4-trimethylbenzene at 0.13 mg/kg. There were no VOCs detected in sample WL-SED-4.

The results of the EPH scan were well below the DEP landfill reuse levels in each of the samples analyzed. The total PAH compounds in samples WL-SED-2 and WL-SED-3 were above the 100 mg/kg limit at concentrations of 101 mg/kg and 213 mg/kg, respectively. The results for PAHs in samples WL-SED-1, -4 and -5 were well below the 100 mg/kg limit.

The results of the PCB analysis showed concentrations well below the 2 mg/kg limit. The results of the pesticide analysis showed detectable levels of 4,4'-DDD, 4,4'-DDE and 4,4'-DDT. Concentrations of 4,4'-DDD above 1 mg/kg were found at each of the sample locations. The highest concentration of 3.8 mg/kg was found in the sample collected at WL-SED-3. The highest concentration for 4,4'-DDT of 3.6 mg/kg was found in the native sample collected from WL-SED-5.

The concentrations of metals found were below the DEP landfill reuse levels, and were generally lower in comparison with the other study areas. None of the samples tested for TCLP lead exceeded the regulatory limit. The results for reactive cyanide and sulfide were below their respective regulatory limits. One sample was tested for the paint filter test. The results showed that there was no free liquid present. The locations for Willow Pond are shown on Figures F2-6A,B for fill and native material and the sample results are summarized in Table F2-5.







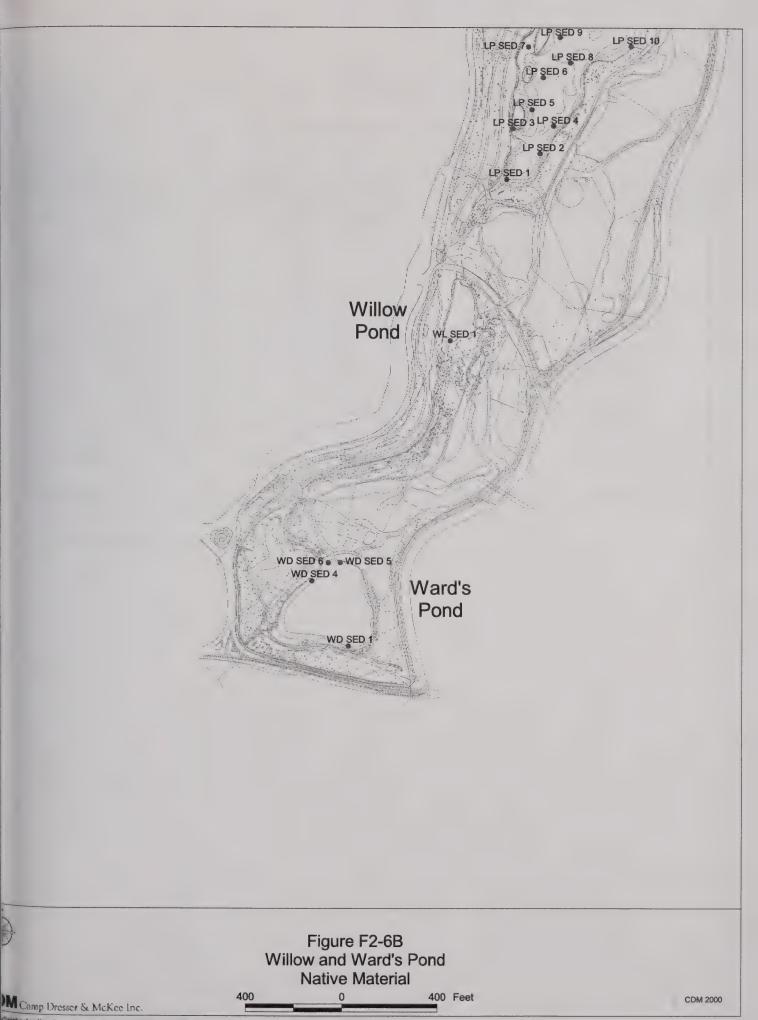




TABLE F2-5 SUMMARY OF ANALYTICAL RESULTS - WILLOW POND

Contaminant	No. of Samples	Concentration I Minimum Maximum		DEP Landfill Reuse Levels ¹ Unlined Lined		No. of Samples Exceeding	
	Dampies	William	Maximum	Offined	Lined	Unlined Lined	
Total Arsenic	10	ND	36	40	40	No Exce	edances
Total Cadmium	10	ND	2.3	30	80	No Exceedances	
Total Chromium	10	9.2	57	1000	1000	No Exceedances	
Total Lead	10	4	960	1000	2000	No Exceedances	
TCLP Lead (mg/L)	4	ND	2	NA	NA	No Exceedances	
Total Mercury	10	ND	0.8	10	10	No Exceedances	
Total EPH	10	ND	1410	2500	5000	No Exceedances	
Total PCBs	9	ND	0.153	<2	<2	No Exceedances	
Total PAHs	10	ND	213	100	100	2 2	
Total VPH	10	6	118	NA	NA	No Exceedances	
Total VPH Target	10	Not D	etected	4 10 No Exceedance		edances	
Reactive Sulfide	9	ND	270	500		No Exceedances	
Reactive Cyanide	9	Not D	etected	250		No Exceedances	
pН	9	5.7	7	2 < pH < 12.5		No Exceedances	
Conductivity	9	80	500	4000 umhos/cm 8000 umhos/cm		No Exceedances	

¹ All results are reported in mg/kg unless otherwise noted.



2.3.6 Ward's Pond Borings

Sediment Characteristics

These borings were completed to a maximum depth of ten feet below the top of sediment or upon encountering native material. The general stratigraphy encountered in Ward's Pond consisted of varying thickness (0 to 6 ft) of a soft, black, organic silt, intermixed with fine to coarse sand and gravel. The native material underlying the silt layer was typically observed at two to eight feet below the top of the sediment. Native material consists of grey, medium dense to very dense sand with varying amounts of silt and/or fine gravel. Petroleum odors were observed at location WD-SED-1 to depths of six feet below the top of the sediment layer.

Sediment Analytical Results

The results for the VPH scan showed detectable levels of C_5 to C_8 and C_9 to C_{12} aliphatic hydrocarbons in samples of fill and native material collected at locations WD-SED-1, WD-SED-2 and WD-SED-4. The carbon ranges were not detected in samples collected at locations WD-SED-3, WD-SED-5 and WD-SED-6. Target compounds were not detected in any of the samples analyzed. The sample collected at WD-SED-3 was also analyzed for VOCs by Method 8260. There were no VOC compounds detected. The results of the EPH scan including the target PAH compounds were well below the DEP landfill reuse levels in each of the samples analyzed.

The results of the PCB analysis showed concentrations below the 2 mg/kg limit. PCBs, including aroclors 1248, 1254 and 1260, were only detected in samples collected from location WD-SED-1. Similarly, the results of the pesticide analysis showed detectable levels only in a sample collected from WD-SED-1.

The results of the inorganic analysis generally showed low levels of metals at each of the locations sampled. However, a sample collected from location WD-SED-5 with a total lead concentration of 190 mg/kg exceeded the TCLP lead regulatory limit with a concentration of 19 mg/L.

The results for reactive cyanide were below the detection limits. A sample collected from location WD-SED-1 exceeded the regulatory limit for sulfides at a concentration of 510 mg/kg. One sample was tested for the paint filter test. The results showed that free liquid was present. The locations of samples collected from Ward's Pond are shown on Figure F2-6A,B for fill and native material and the sample results are summarized in Table F2-6.



TABLE F2-6 SUMMARY OF ANALYTICAL RESULTS - WARD'S POND

Muddy River Restoration Project

Contaminant	No. of	Concen	tration 1	DEP Landfill Reuse Levels ¹		No. of Samples Exceeding	
	Samples	Minimum	Maximum	Unlined	Lined	Unlined	Lined
Total Arsenic	15	ND	11	40	40	No Exce	edances
Total Cadmium	15	ND	1.8	30	80	No Exceedances	
Total Chromium	15	8.5	34	1000	1000	No Exceedances	
Total Lead	15	ND	1000	1000	2000	1	None
TCLP Lead (mg/L)	4	ND	19	NA	NA	1 Exceeds RCRA ²	
Total Mercury	15	ND	0.36	10	10	No Exceedances	
Total EPH	15	ND	220	2500	5000	No Exceedances	
Total PCBs	10	ND	1.07	<2	<2	No Exceedances	
Total PAHs	15	ND	35	100	100	No Exceedances	
Total VPH	15	ND	70	NA	NA	No Exceedances	
Total VPH Target	15	Not Detected		4	10	No Exce	edances
Reactive Sulfide	10	ND	510	500		1	1
Reactive Cyanide	10	Not Detected		250		No Exce	edances
рН	10	5.5	6.9	2 < pH < 12.5 No Exceedances		edances	
Conductivity	10	51	330	4000 umhos/cm 8000 umhos/cm No Exceedances		edances	

All results are reported in mg/kg unless otherwise noted.

 $^{^{2}\,}$ Concentration above the federal regulatory limit of 5 mg/L.



Section 3 Data Analysis and Interpretation

3.1 Introduction

One of the objectives of CDM's field investigation was to collect data for areas that had not been previously investigated and to provide supplemental data, where needed, to characterize the sediment for disposal purposes. This section of the report will present an overall evaluation of the data collected and a discussion/review of potentially acceptable disposal options.

Overall, the results of CDM's investigation showed elevated concentrations of lead, arsenic, PAHs, and PCBs. Typically the concentrations of the analytes were higher in the top sediment layer, and in samples collected from the Back Bay Fens. Extractable petroleum hydrocarbons, including the target PAH compounds, were found primarily in samples collected from the Riverway. Total PCBs above 2 mg/kg were found in the Back Bay Fens only. The concentrations are usually higher near drain discharge points, specifically the Chestnut Street drain, Longwood Avenue drain and the Stony Brook Conduit. The results suggest that these drainage points are a continuing source of contamination. Other possible sources include runoff of fertilizer/treatment of lawn and garden areas or detergents and surfactants from roadways.

3.2 Data Interpretation

Given the inherent difficulties with sediment sampling and analysis (e.g., collecting a representative sample, sample heterogeneity and low percentage solids), and the varying and numerous possible sources of contaminants, delineation of areas with similar contaminants was not expected. However, there are several areas that have been identified. These areas include the following:

- Willow Pond;
- Riverway; and
- Back Bay Fens.

Willow Pond has been included in this discussion even though a known source has been identified. Fuel oil has been introduced to the Pond via the Chestnut Street drain. Sediment samples exhibit elevated concentrations of PAHs and similarities in the individual PAH compounds detected among these samples. In the samples collected by CDM that showed elevated concentrations of PAHs, the depth of contamination could not be determined since only the top 2 feet of fill material was sampled. Sample locations were only accessible by foot and the sediment layer was too soft to support the tripod sampling equipment set-up.

The results for the Riverway show that PAHs above 100 mg/kg were found primarily in this area. Soils and sediments contain a wide array of PAHs derived from both natural and anthropogenic sources. The major sources of PAHs are the combustion of fossil fuels and wood. Atmospheric deposition and direct disposal of combustion residues (ash) are significant pathways for soil and sediment PAHs. Anthropogenic activities began contributing large quantities of PAHs to the environment beginning approximately 80 to 100 years ago (Gschwend & Hites, 1981).

Riverway area sediments also contain phosphorus at elevated levels. Phosphorus was found at levels ranging from 262 mg/kg to 3,180 mg/kg. These concentrations are substantially higher than values found elsewhere in the Muddy River and suggest that enrichment of sediment phosphorus in this area has resulted. The average phosphorus concentration of upland mineral soils is 500 mg/kg (Black, 1968), whereas continental sediments contain on average 700 mg/kg and marine sediments contain an average 1,200 mg/kg (Brink, 1978). Phosphorus is tightly bound to soils and sediments in most environments and in many water bodies phosphorus becomes a limiting nutrient for eutrophication. Elevated levels of dissolved phosphorus may be present within the Riverway area and in turn this could lead to stimulation of aquatic plant growth.

Phosphorus concentrations generally increase in the down river direction and reaches the highest levels immediately prior to the river bend and flow into the Back Bay Fens area. This part of the river may be an area of sedimentation due to restricted flow conditions. The average phosphorus concentration of the fill and the native sediments are not significantly different and no clear trend in concentration gradient with depth is evident. Those native sediments derived from marine deposits, like Boston blue clay, would be expected to have higher concentrations than fill materials placed within the Riverway. The elevated levels of phosphorus in the fill sediment could be the result of particulate bound or dissolved phosphorus introduced via:

- Runoff and sedimentation of soils enriched with phosphorus;
- Runoff of fertilizer from adjacent lawn and garden areas;
- Runoff of detergents and other surfactants from roadways;
- Runoff and/or stormwater discharges containing animal fecal matter (dogs);
- Waterfowl fecal matter (e.g., ducks, sea gulls);
- Point source discharges in the area (Longwood Avenue Drain);
- River water contributed from up stream areas; and

■ Biomass turnover.

There are two distinct areas in the Back Bay Fens that show consistent results for either arsenic or lead. Arsenic is present at elevated concentrations in samples collected in the area of Clemente Field, and lead is found at elevated levels, including TCLP lead above 5mg/L, in samples collected from the Lower Fens North Basin area. The Lower Fens North Basin is also the only area where PCBs were found above 2 mg/kg in each of the areas characterized by CDM. The elevated concentrations could be a result of discharges from the Stony Brook Conduit.

In the area of Clemente Field the average arsenic concentration in fill is 38 mg/kg and in the native sediment is 11 mg/kg. Whereas the average arsenic concentration within the Back Bay Fens in the fill sediment is 15.2 mg/kg, and the average concentration in the native sediment is 5.5 mg/kg. Although upland soils typically contain about 5 mg/kg of arsenic, marine sediments, like the Boston blue clays, contain an average of 40 mg/kg arsenic. Arsenic will also be higher in sediments that contain sulfides or that are laid down in a reducing environment. Although the native sediments within the Back Bay Fens area contain arsenic values within the range expected for marine sediments, the fill materials contain some arsenic levels that would suggest enrichment due to contaminant input.

Although arsenic in sediment is closely related to sulfide and organic matter content no clear correlation to reactive sulfide or organic matter content was observed. The arsenic present in the sediment may be bound to iron or other compounds that could limit its availability for leaching.

Historical sources of arsenic contamination include a variety of biocides, including rat poisons and agricultural pesticides, coal ash, and the combustion products of fossil fuels. Arsenic based insecticides and fungicides were commonly used in gardens in the early 1900's. Aquatic sediments are good scavengers of arsenic compounds and as such it is not unreasonable to see elevated levels of arsenic in sediments located adjacent to areas that have been used for agricultural or farming activities.

The other area within the Back Bay Fens that shows consistent contaminant concentrations is the Lower Fens North Basin. Most of the samples analyzed in this area contained TCLP lead above the regulatory limit. In most urban settings surficial soils have become enriched with lead. Lead enrichment has resulted near roadways and in watercourses receiving runoff due to atmospheric deposition of historical combustion of leaded gasoline. Other sources of lead in the urban environment include paints used in residential, commercial and garden applications. Peeling or scraping of leaded paint from residential buildings has resulted in soil lead levels exceeding thousands of parts per million in some cases. Other significant sources of anthropogenic lead include lead battery recycling facilities and lead smelters. The mobility of lead in soils varies depending on its form. Lead bound to organic matter may be more easily leached than that bound as sulfide or oxide compound. These

more soluble forms of lead may be present in the Back Bay Fens area and could account for the higher proportion of samples exhibiting lead toxic characteristics.

3.3 Disposal Recommendations

Disposal options have been identified for each of the areas studied based on the analytical results available and the expected depth of material to be dredged. The final disposal sites selected may be revised, however, if the physical and chemical quality of the sediments differs from the current view following processing. Likewise, disposal options may be reconsidered based on available landfill capacity and costs of disposal based on contractor's bids. The disposal options evaluated for the dredged material include the following:

- In-State Unlined Landfill;
- In-State Lined Landfill;
- Out-of-State Lined Landfill; and
- RCRA Subtitle C Landfill.

The DEP has established limits for specific contaminants that are acceptable for sediment reuse at Massachusetts landfills as daily cover, intermediate cover and/or pre-cap contouring material. Note that there are other acceptance criteria and/or DEP approval that may be required prior to disposal. If the reuse limits are exceeded then the sediment will have to be disposed of at an Out-of-State landfill. Sediment that meets the criteria of a hazardous waste will require disposal at a RCRA Subtitle C landfill.

Disposal options were determined based primarily on the concentrations of lead, arsenic, PAHs, PCBs, and reactive sulfide. Several sediment samples contained reactive sulfide concentrations above the regulatory limit of 500 mg/kg, which would necessitate disposal as a hazardous waste. However, it was assumed that the material would be disposed of at an Out-of-State, non-RCRA landfill facility because of the uncertainty in the guidance and EPA test methods, CDM's experience on other projects and the low frequency of samples above the regulatory level (6 percent of the samples analyzed).

The analytical results further indicate that during dredging and processing activities, air monitoring and emissions controls will be necessary to address the potential for release of volatile compounds and hydrogen sulfide. Disposal options for each of the areas are discussed in the following paragraphs.

Charlesgate Area

As shown on Figure F3-1, the results of samples collected from the Charlesgate area are all below the DEP landfill reuse levels for an unlined landfill. This includes samples of the fill and native material. Therefore, the disposal option for this area is at an unlined landfill.

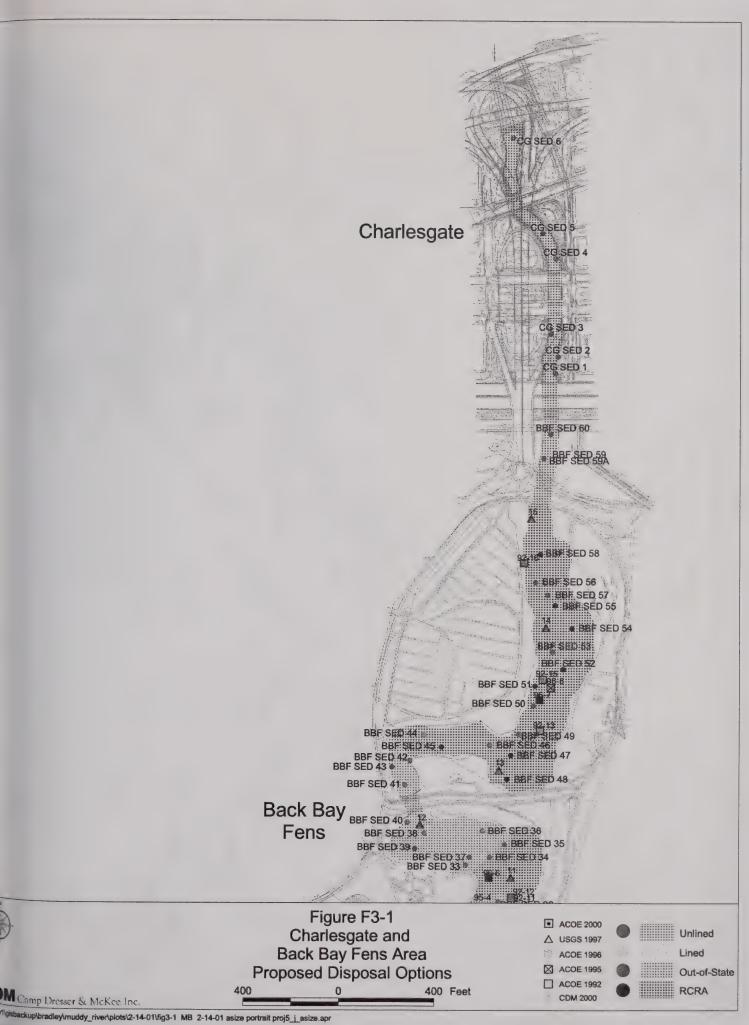
Back Bay Fens

The proposed disposal options for the Back Bay Fens are shown in Figures F3-1 through F3-3. The results for sediments from the Massachusetts Turnpike to Ipswich Street are below the DEP landfill reuse levels for an unlined landfill. In the Lower Fens North Basin, analytical results for most of the samples exceeded the regulatory level for lead and therefore meet the criteria for a characteristic hazardous waste requiring disposal as such. Similarly as shown on Figure F3-2, a section in the Lower Fens Southern Basin that based on the TCLP lead result at location 96-6 will require disposal as a hazardous waste. Other than the Upper Fens Pond and a section of the lagoon area, most of the sediment dredged from the Back Bay Fens will require disposal at an Out-of-State landfill facility. The results of samples collected in the area of Clemente Field were consistent and showed concentrations of arsenic above the DEP reuse levels. The results for samples collected of the native material were also fairly consistent in this area, exceeding the concentration of conductivity for disposal at an unlined landfill. These results are consistent with the original land use of the Back Bay Fens that was a salt marsh. The results of samples collected from the Southern Basin were consistent and contained PCBs above the 2 mg/kg reuse levels.

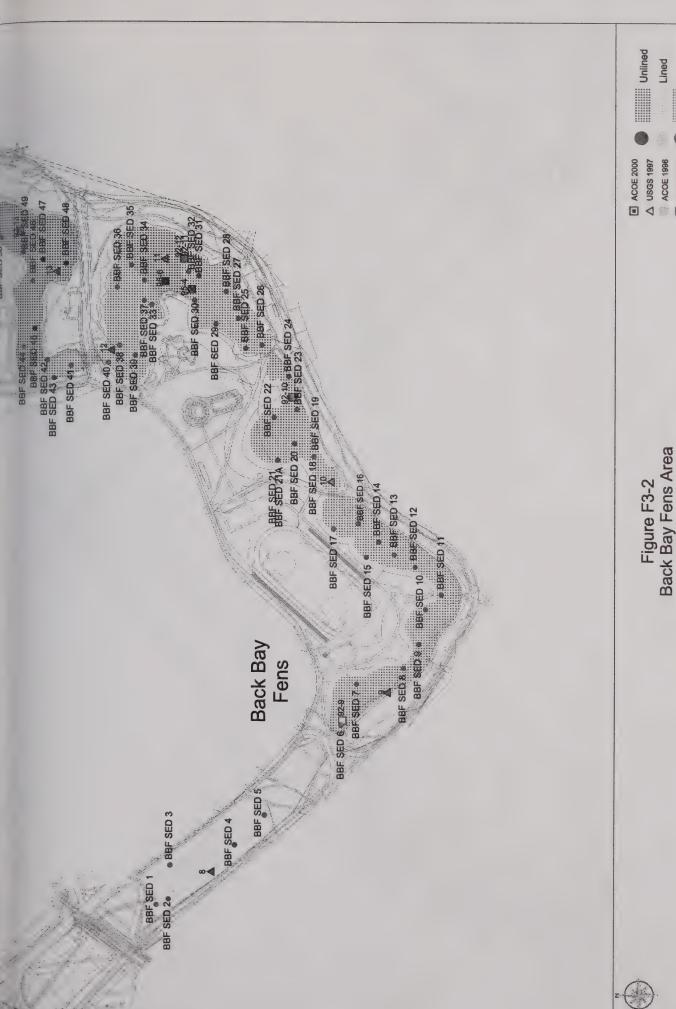
Riverway

The disposal options proposed for the Riverway are shown on Figures F3-3 through F3-5. As shown on Figure F3-3, the results for the area in the Riverway North section meet the reuse disposal criteria for a lined landfill based on the concentration of extractable petroleum hydrocarbons. Sediments in the section near the Chapel Street Bridge and south of the Longwood Bridge in the Riverway North section as shown on Figure F3-4, are below the reuse levels for an unlined landfill. Out-of-State disposal has been identified for most of the Riverway due to the concentrations of PAHs and arsenic. Previous studies in the Riverway had identified the area near the Tannery Brook drain based on the elevated concentrations of PAHs found. However, CDM collected a sample near this location and found low levels of PAHs and lead. The highest concentrations of PAHs found in the Riverway were near the Longwood Avenue drain.









CDM Camp Dresser & McKee Inc.

Out-of-State

ACOE 1995

CDM 2000

400 Feet

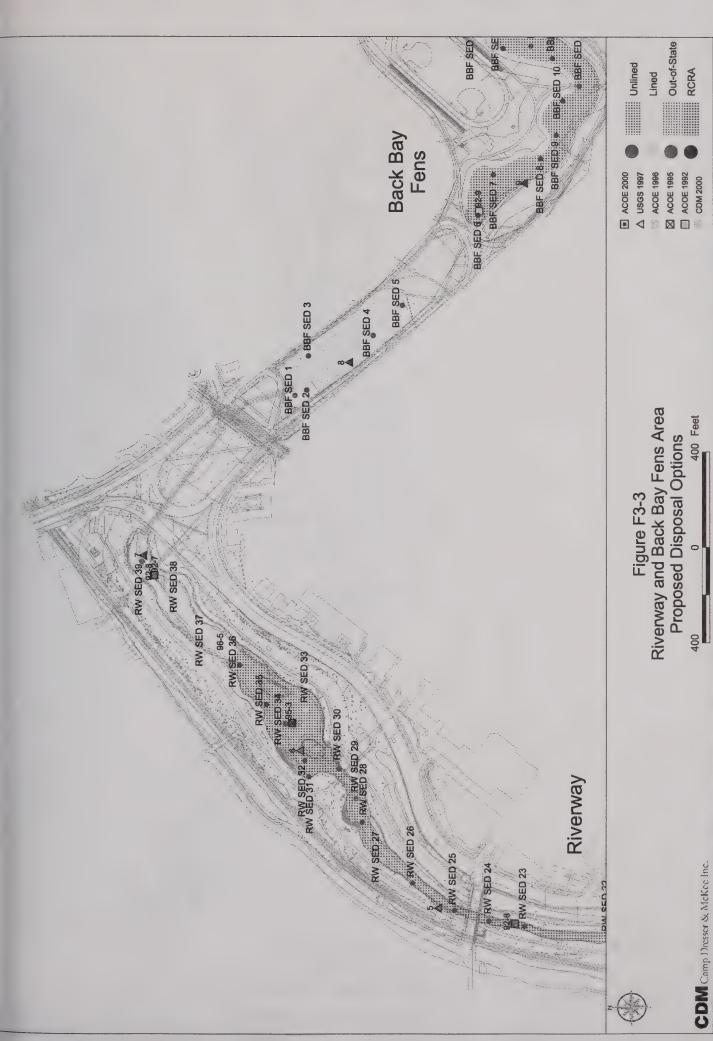
Proposed Disposal Options

400

RCRA

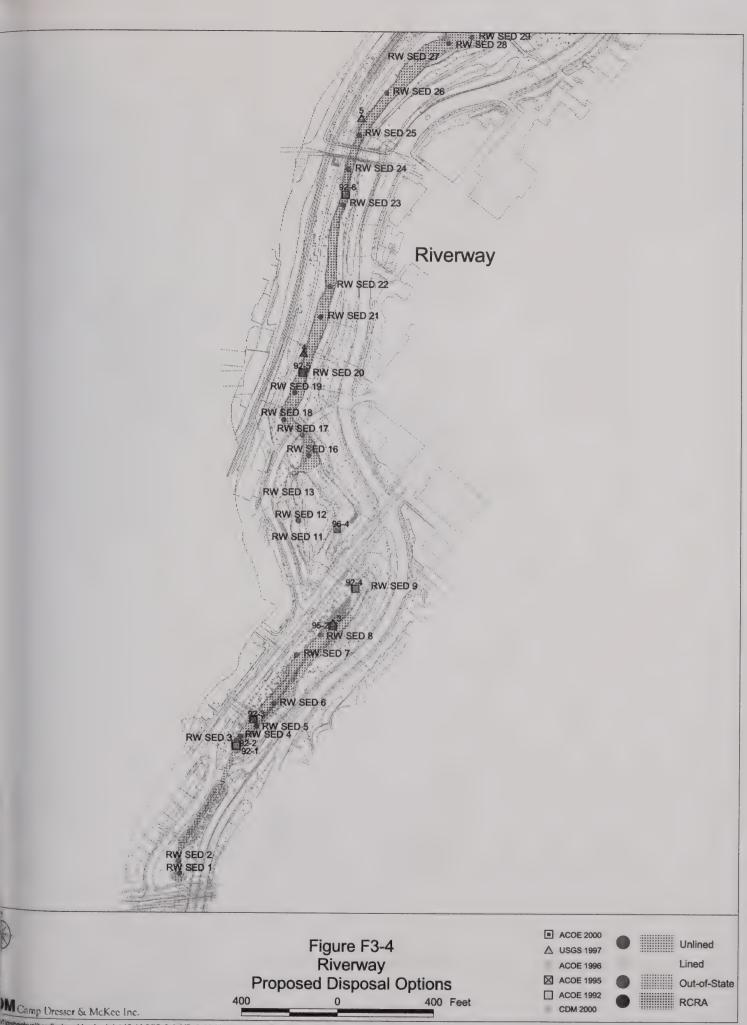
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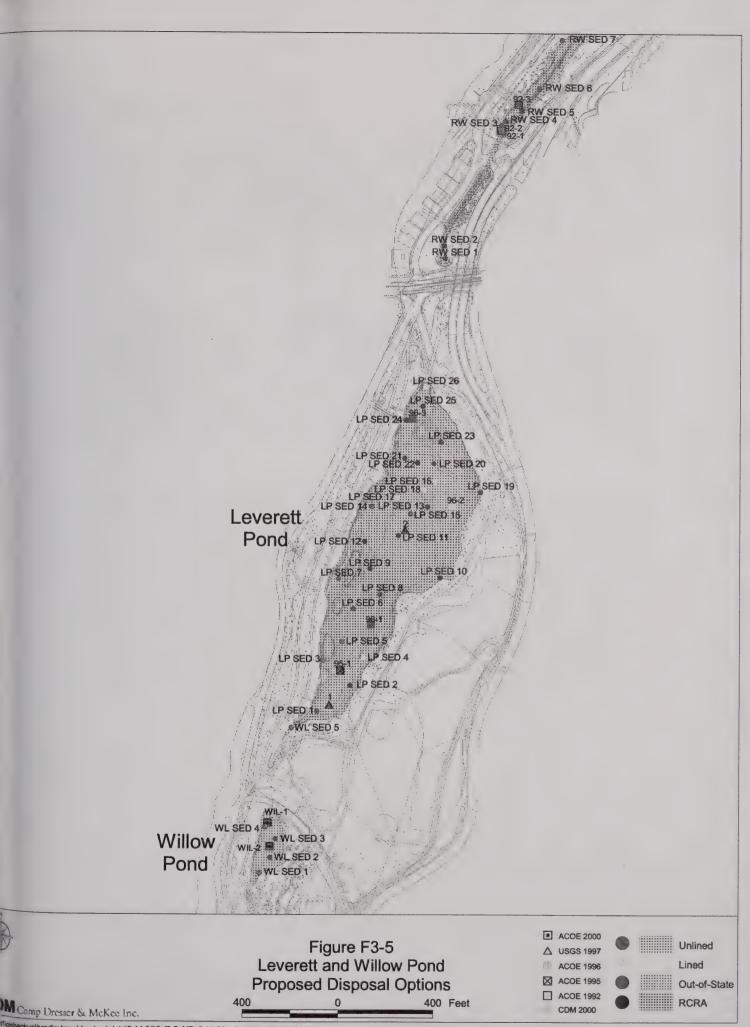


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interpretation of the control of the



Leverett Pond

Sediment dredged from the inlet and the center of the Pond meet the criteria for reuse at an unlined landfill and the remainder will be disposed of at an Out-of-State landfill as shown in Figure F3-5. Generally the highest concentrations of contaminants were found along the centerline of the Pond. The results for samples collected from LP-SED-11, -12 and -13 exceeded the reuse levels for arsenic and the other samples exceeded the total PAH criterion. The highest concentrations of PAHs found are near the Village Brook drain.

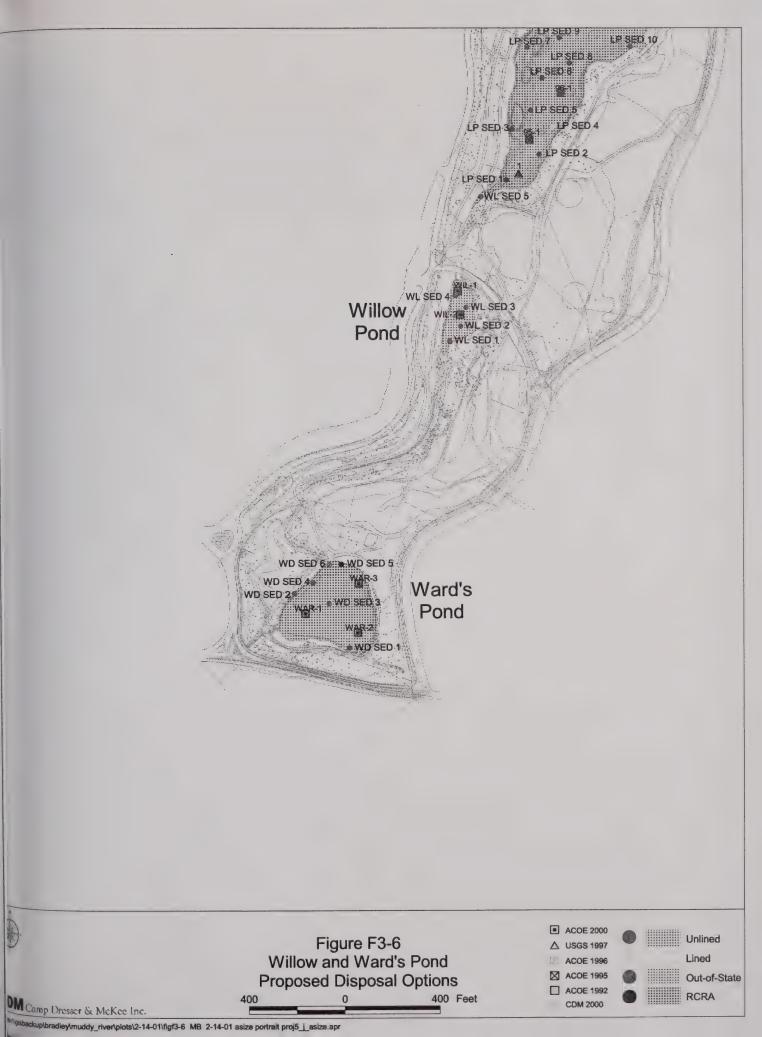
Willow Pond

Remedial response actions are continuing at Willow Pond to address releases of petroleum hydrocarbons from the Chestnut Street drain. Currently a boom divides the Pond. The results of CDM's field investigation were consistent with previous studies as petroleum odors and sheen were observed at each sample location. PAHs were found above 100 mg/kg in samples collected from locations WIL-1, WIL-2, WL-SED-2, and WL-SED-3. As shown on Figure F3-6, sediment dredged from Willow Pond will be disposed of at an Out-of-State facility.

Ward's Pond

The results of samples collected from Ward's Pond are below the DEP reuse levels for disposal at an unlined landfill except for samples collected from location WD-SED-1 and WD-SED-5. The results of a sample collected from the fill at location WD-SED-1 exceeded the reactive sulfide regulatory limit of 500 mg/kg and therefore will require disposal at an Out-of-State landfill. The results of a sample collected from the 4 to 6 ft depth interval at WD-SED-5 exceeded the regulatory level for lead at a concentration of 19 mg/L. The total lead concentration in this sample was 190 mg/kg. Since Ward's Pond was not accessible by barge, additional sampling in this area below a depth of 2 feet could not be conducted to verify this sample result. Therefore, sediment removed from this area of the Pond will be disposed of as a hazardous waste. The disposal options for Ward's Pond are shown in Figure F3-6.







ATTACHMENT F-1

SEDIMENT QUALITY TESTING PLAN AND RELEVANT DEP CORRESPONDENCE



Muddy River Restoration Project Sediment Quality Testing Plan

May, 2000



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Section 1 Introduction

1.1 General Approach

This Sampling and Analysis Plan has been prepared to conduct a characterization of sediments along the Muddy River system. From its source at Jamaica Pond, the Muddy River flows north through three interconnected ponds (i.e., Wards, Willow and Leverett Pond), from Leverett Pond to Park Drive (referred to as the Riverway), and the last reach from Park Drive to the Charles River (referred to as the Back Bay Fens). The Muddy River system is shown on Figure 1-1 provided at the end of this report. The characterization of sediments is part of the Muddy River Restoration Project that includes the potential dredging of the river, modifications to culverts, and other measures to mitigate flooding and improve upon existing water quality. The approximate volumes of sediment proposed for removal in the Environmental Notification Form are as follows:

Wards Pond 19,340 yds³

Willow Pond 9,670 yds³

The Riverway 30,000 yds³

Leverett Pond 21,788 yds³

Back Bay Fens 91,102 yds³

The objective of the field characterization program is to obtain information to define subsurface conditions at the locations where dredging is proposed to take place. The field program will include the advancement of borings and sediment sample collection. The analytical results will be used to determine the suitability of dredged materials for various disposal options.

Additional tasks include the sampling and analysis of soils collected from borings to be installed for geotechnical purposes, and samples collected of the sediment that has accumulated in culverts. The borings are proposed to collect geotechnical information for the design of enlarged culverts and open channel sections. Select samples will be submitted for analysis for disposal purposes. The proposed boring locations are shown on Figure 1-1.

1.1.1 Previous Field investigations

Two previous investigations have been conducted on sediments in the Muddy River. The sample locations from each investigation are shown on Figure 1-1. In 1996, seven sediment core samples were collected by the U.S. Army Corps of Engineers (ACOE). The cores extended to depths of 40 to 60 inches. The samples were analyzed for total petroleum hydrocarbons, polychlorinated biphenyls (PCBs), cyanide, and lead. The

results of that investigation and a figure that shows the sample locations are provided in Attachment I. The analytical results showed levels of total petroleum hydrocarbons and lead in excess of the Massachusetts Department of Environmental Protection (DEP) Lined and Unlined Landfill Reuse Allowable Contamination Levels for Soil Criteria. The levels of PCBs were also above the Lined Landfill Reuse Criteria and the concentration of lead exceeded the Toxicity Characteristic Leaching Procedure (TCLP) level of 5 mg/L in two samples collected from the Back Bay Fens area. Typically the concentrations of the analytes tested were higher in the top 24-inch samples and in samples collected from the Back Bay Fens area.

In 1998, the U.S. Geologic Survey published screening level data on the sediments from the Back Bay Fens, Riverway and Leverett Pond. Sediment samples were collected from 15 locations and analyzed for total petroleum hydrocarbons, polynuclear aromatic hydrocarbon (PAHs) compounds, PCBs, pesticides, total organic carbon, metals, TCLP metals, grain size, and percent moisture. The samples were collected at depths ranging from 6 inches to 78 inches. The results are summarized and presented in Attachment I. The results were similar to those observed during the 1996 investigation. The concentrations were generally higher in samples collected from the Back Bay Fens area and lower in concentration in samples collected from the Riverway section. The data indicated elevated levels of petroleum hydrocarbons, lead, PAHs, and PCBs.

Recently, five samples were collected by the ACOE from Wards and Willow Pond. The sample locations are shown on Figure 1-1. The results of these samples will be available at the end of May. Sample locations proposed in these areas may be adjusted based on the results of the ACOE sampling.

1.2 Disposal Options

The disposal options evaluated for the dredged material include the following:

- In-State Unlined Landfill;
- In-State Lined Landfill;
- Out-of-State Lined Landfill; and
- RCRA Subtitle C Landfill.

The criteria and requirements of the various landfill disposal options, including frequency of sampling and parameters for analysis are listed in Table 1-1. An asphalt batch recycling facility was contacted, however, it is not likely that the dredged material will meet the criteria due to the high organic content of the sediment material. Based on the results from previous investigations and discussions with various landfill facilities, variations of analytical requirements will be proposed in Section 2.

Table 1-1 Sediment Disposal Landfill Criteria

Muddy River Restoration Project

Disp	Disposal Option	Location	Sampling Frequency	Volume Limitations	Ac Criteria EPHA	Accept MA EPH/VPH vs. TPH
Lined In-State	Waste Management	MA	Every 500 cubic yards	None	MA Lined Landfill Requirements	YES
Out-of-State Waste Manager	Out-of-State Waste Management (Crossroads)	ME	Every 500 tons (Negotiable)	None	Full TCLP Suite, Reactivity, pH, PCBs, TOX	YES
Unlined Amalga	ined Waste Management Amalgamated Transportation	MA	Every 500 cubic yards Every 500 cubic yards	None	MA Unlined Landfill Requirements MA Unlined Landfill Requirements	YES
RCRA	Waste Management	MA	Every 500 cubic yards	None	PCBs< 500 mg/kg	YES
Recycling	Aggregate Industries	MA	Every 100 cubic yards	None	MA Hot/Cold Batch Plant Requirements	NO

Note: Landfill Disposal criteria are provided as Attachment II.

EPH= Extractable Petroleum Hydrocarbons VPH= Volatile Petroleum Hydrocarbons TPH= Total Petroleum Hydrocarbons



Section 2 Field Investigations

2.1 Rationale and Approach

The following subsections describe the rationale and approach, as well as specific procedures for implementing the Sampling and Analysis Plan. Sample locations proposed for the sampling plan were based on the following:

- The results of previous investigations;
- Visual observations of the Muddy River system; and
- The locations of drains, discharge points and above-ground deposits (e.g., sand bars) expected to be dredged that are located along the Muddy River.

Samples will also be collected along the proposed channel center line to obtain representative samples and to define stratification within the material to be dredged. The number of samples proposed for each area was based on the testing frequency required by the landfill disposal facilities.

A site walkover was conducted to evaluate access routes for the drilling and sampling equipment. If access is available via the inner roads that lead to Wards, Willow and Leverett Pond there should be minimal disturbance to wetland areas. Other than the beginning of the Riverway section (Route 9), access is readily available to the sample locations.

The borings will be installed using several methods depending on access limitations and subsurface conditions. The samples will be collected by drive and wash drilling, split-spoon augers or hand augering. The sample method employed will be conducted in a manner that minimizes disturbances of the sediment during sample collection. It is expected that only minimal cuttings will be generated by these methods. Final boring locations will be determined in the field based on factors such as rig access and subsurface conditions. Each boring location will be tied into the survey grid.

Excluding Wards, Willow and Leverett Pond, the project has been distinguished by three areas, the Riverway, Back Bay Fens area, and the Charlesgate area. The Riverway includes samples from Leverett Pond to Park Drive, the Back Bay Fens extends to Ipswich Street, and the Charlesgate area extends to the Charles River.

The results of previous investigations has shown that the highest concentrations were found in samples collected from the Back Bay Fens area. It is expected that most of the sediments will be removed from this area. As shown on Figure 1-1, approximately 140 boring locations are proposed, with most of the borings located in the Back Bay Fens area.

2.2 General Procedures

The following describes the general procedures that will be adhered to in order to ensure the representativeness and integrity of the environmental samples. Up to three stratified samples which best represent specific strata, including native sediment, will be collected from each core.

Core logs will be prepared containing the identification of specific strata, grain size, staining and other visual observations. The following information will be recorded:

- Sampling personnel;
- Weather conditions;
- Date and time of field activities;
- Sample method;
- Position and depth of sample;
- Depth of overlying water;
- Field screening measurements;
- Instrumentation used and any deviations from the proposed methodology;
- Visual/olfactory observations; and
- Physical description of the material and geologic classification.

The samples will be analyzed for the constituents listed below.

<u>Parameter</u>	Test Method
■ Petroleum Hydrocarbons	DEP VPH/EPH Method with GC/MS of PAHs
■ RCRA 8 Metals	EPA Methods 6010, 7471, 7740, 7840
■ Pesticides/PCBs	EPA Method 8080
■ Conductance	EPA Method 120.1, 9050
■ TCLP Metals	EPA Method 1311, SW846
■ Reactivity Sulfide & Cyanide	EPA Method 7.3
Corrosivity	EPA Method 9040B/9045C

■ Percent Water Computed

■ Combined Sieve and ASTM D422-63 Hydrometer

■ Paint Filter Test EPA Method 9095A

All samples will be analyzed by EPA/DEP approved analytical procedures. Detection limits for samples will be consistent with regulatory limits. Quality Assurance/Quality Control (QA/QC) samples will be collected and analyzed and will include duplicate samples, trip blanks and matrix spike samples. These samples will be used to test for consistency and reproducibility for the overall sampling and analytical process. One out of every 20 samples will be collected for duplicate analysis. The analytical laboratories will be required to perform matrix spike analyses. The frequency of collecting samples for trip blank analysis will be established once the sampling program has been initiated and will be dependent on the number of samples that can be collected each day. All of the QA/QC samples will be used to validate the analytical results for samples received from the laboratory.

2.2.1 Proposed Analytical Scenarios

Although the samples collected to date have been analyzed for total petroleum hydrocarbons, it is proposed that DEP's volatile petroleum hydrocarbon (VPH) and extractable petroleum hydrocarbon (EPH) methods rather than the TPH method are used. The naturally occurring substances and fine particulate that are generally found in sediment present interferences to the TPH method and result in false positives. As listed in Table 1-1, the disposal facilities contacted would accept the VPH and EPH data as a measure of petroleum hydrocarbons.

Given the available data and the expected volume of dredging, different sampling scenarios are proposed for each area. For the Back Bay Fens area, ten previous samples were analyzed for TPH, total and TCLP inorganics, organochlorine pesticides, PCBs, PAHs, total organic carbon (TOC), grain size, and percent moisture. The results showed levels above the DEP's Lined Landfill criteria for TPH, PAHs, PCBs, and lead. The concentrations of PAHs, PCBs and lead were consistent in most of the samples collected by the USGS. Concentrations of PAHs ranged from 58 mg/kg to 270 mg/kg, PCBs ranged from 0.04 mg/kg to 3.4 mg/kg, and lead from 156 mg/kg to 1,410 mg/kg. Based on these results, as well as two samples collected by the ACOE that TCLP regulatory levels for lead were exceeded, samples collected from the Back Bay Fens and Charlesgate areas will be analyzed for each of the parameters listed in Section 2.2. There is the possibility that this area may be dredged in the dry. As such, additional sediment material will be collected at each proposed sample location and will be composited and measured for the paint filter liquid test to determine whether this material would require filtration prior to disposal.

Approximately 20 samples will be submitted to the laboratory for the paint filter liquid test.

For the Riverway area, nine samples have been previously collected for analysis. The concentrations were generally lower than those observed at the Back Bay Fens area. The concentrations of PCBs were below 2 mg/kg for each of the samples analyzed. The concentrations of lead ranged from 210 to 1,500 mg/kg, however only two samples exceeded the Unlined Landfill Disposal Criteria of 1,000 mg/kg. There were no exceedances of the TCLP regulatory levels for lead in the six samples that were analyzed. Three samples exceeded the total semivolatile organic compounds Unlined and Lined Landfill Disposal criteria of 100 mg/kg. Concentrations of PAHs ranged from 61 mg/kg to 342 mg/kg. Based on these results, it is proposed that only the odd-numbered samples are analyzed for the full suite of parameters (excluding the paint filter test). The even-numbered samples would be analyzed for VPH, EPH, RCRA 8 metals, and TCLP metals.

For Wards, Willow and Leverett Pond, existing data are only available for Leverett Pond. The data for Wards and Willow Pond will be available at the end of May. As such, the full suite of parameters (excluding the paint filter test) will be analyzed. Five samples were collected from Leverett Pond. The results showed levels of PCBs and lead below the Unlined Landfill Disposal criteria. The results of PAHs were above the Unlined and Lined Landfill Disposal criteria of 100 mg/kg. Based on these results, it is proposed that only the odd-numbered samples are analyzed for the full suite of parameters (excluding the paint filter test). The even-numbered samples would be analyzed for VPH, EPH, RCRA 8 metals, and TCLP metals. The proposed sampling frequency and parameters for analysis are summarized by each area and listed in Table 2-1.

2.2.2 Additional Sampling and Analysis Testing

As discussed in Section 1, soil samples will be collected from the geotechnical borings and analyzed for the parameters listed in Section 2.2. Approximately three samples will be collected from the 12 sampling locations. Two samples will be collected of the fill material and one will be collected from the bottom of the boring. Additional samples will be collected if elevated headspace measurements are observed.

Samples will also be collected from the sediment material that has deposited in the culverts. The samples will be collected from each of the ends of the culvert and sampled for the parameters that are listed in Section 2.2. Estimates of the volume of sediment contained within the culvert and the appropriate disposal facility will be determined from these samples.

Table 2-1 Sampling Frequency and Proposed Parameters for Analysis

Muddy River Restoration Project

Area of Study	Proposed Excavation Volume	Existing Samples	Proposed Samples	Sampling Frequency (samples/yd³)	Analyses
Wards Pond	19,340 yd ³	т	36	496	VPH, EPH, RCRA 8 metals, PCBs, pesticides, TCLP metals, Reactivity, Conductance, and Sieve & Hydrometer
Willow Pond	9,670 yd³	2	18	484	VPH, EPH, RCRA 8 metals, PCBs, pesticides, TCLP metals, Reactivity, Conductance, and Sieve & Hydrometer
Leverett Pond	21,788 yd³	00	39 (odd-numbered)	253	VPH, EPH, RCRA 8 metals, PCBs, pesticides, TCLP metals, Reactivity, Conductance, and Sieve & Hydrometer
			39 (even-numbered)		VPH, EPH, RCRA 8 metals, TCLP metals
Riverway	30,000 yd³	6	60 (odd-numbered)	238	VPH, EPH, RCRA 8 metals, PCBs, pesticides, TCLP metals, Reactivity, Conductance, and Sieve & Hydrometer
			57 (even-numbered)		VPH, EPH, RCRA 8 metals, TCLP metals
Back Bay Fens Area (includes Charlesgate Area)	91,102 yd³	12	198	434	VPH, EPH, RCRA 8 metals, PCBs, pesticides, TCLP metals, Reactivity, Conductance, and Sieve & Hydrometer
			20 composite samples		paint filter liquid test

2.2.3 Data Management

The analytical results from the sediment characterization program will be entered electronically into the geographical information system (GIS) data base. Spread sheets of these data will be prepared in which the data are summarized and compared, as appropriate, with sediment and/or landfill disposal criteria. This information will also be presented graphically to illustrate the results and identify trends if present.

Attachment I Previous Investigations



Table C-8: Results of 1996 Corps Muddy River Sediment Tests

Sample	Depth of Core	Section	TPH (mg/kg)	PCBs (mg/kg)	Cyanide (mg/kg)	Lead (mg/kg)	TCLP Lead (mg/L)
96-1	42"	Top 16" Bottom 16"	16000	0.37	< 0.5 < 0.5	880	1 1
36-2	48	Top 24" Bottom 24"	24000	0.97	< 0.5 < 0.4	1000	3.1
96-3	.09	Top 25" Bottom 25"	790	0.03	< 0.3 < 0.3	680	1 1
96-4	40"	Top 20" Bottom 20"	2700	0.05	0.4 < 0.3	82 260	i i
96-5		Top 24" Bottom 24"	37000	1.1	3.4 < 0.5	1500	2.7
9-96	09	Top 24" Bottom 24"	38000	8.1	5.7 < 0.5	2000	5.4
<i>L</i> -96	09	Top 20" Bottom 33"	36000	9.1	2 0.8	1800	0.9
	Mean Mean	Top	22070	2.8	1.4 < 0.4	1140	1 1

Notes:

Samples collected on 12 April 1996
 Samples 96-4 and 96-7 taken from within *Phragmites*

SUPPLEMENTAL DATA

Concentrations of trace metals, organic compounds, total organic carbon, grain-size distributions, percentage of moisture, and toxicity characteristic leaching procedure were analyzed in streambed sediment samples collected at 15 sites in the Muddy River, Massachusetts, in October 1997. These data can be used in conjunction with those presented on the accompanying map report to assist in the design of a remedial program for Muddy River sediments such a program might consider including the advisability of sediment removal, and optimal disposal and re-use options for the dredged sediments.

REFERENCES USED IN SUPPLEMENTAL DATA TABLES

American Public Health Association, American Water Works
Association, and Water Pollution Control Association, 1995,
Standard methods for the examination of water and wasteway
19th ed: Washington, D.C., APHA (variously paginated)

American Society for Testing and Materials, 1980, Natural Building Stones; Soil and Rock: Annual Book of ASTM Standards, pg 19, Philadelphia, 634 p.

U.S. Environmental Protection Agency, 1983, Methods for chemic analysis of water and wastes; U.S. Environmental Protection Agency, Cincinnati, Ohio, EPA-600/4-79-020, March 1979, Revised March 1983.

____1992, Test methods for evaluating solid waste, physical/chemical methods SW-846, 3rd ed., vol. IC, Chap. 1 sec. 8.4, rev. 0, final update, 7/92.

1996, Test methods for evaluating solid waste, physical/chemical methods: SW-846, 3rd ed., Rev. 1 and 2, flu update I, 7/92 and final update III, 12/96.

Table 1. Geographic distribution of trace metals and organic compounds in sediment cores, Muddy River, Massachusetts, October 1997

[All concentrations are in parts per million. Trace metals: Analyses were performed in accordance with sample preparation method 3050B and ICP metals (U.S. Environmental Protection Agency, 1996, rev. 1 and 2). Mercury: Analyses were performed in accordance with method 245.5 (U.S. Environmental Protection Agency, 1983). Organochlorine pesticides and polychlorinate biphenyls: Sample preparation was done by the EPS Multi-Medial Consensus Organics Protocol-Revised 8/87. A macro-Florisil column was used for the sample cleanup. The analysis was carried out using high resolution capillary column chromatography. The 30-m dual capillary system consists of J&W DB-1701 and J&W DB-5, both with a 0.25 mm ID and a 0.25 mm icrometer fil thickness (Peter Philbrook, Office of Measurement and Evaluation Division of the U.S. Environmental Protection Agency, Region I, writted the selected ion monitoring Dick Siscanaw, Office of Measurement and Evaluation Division of the U.S. Environmental Protection Agency, Region I, writted commun., 1997). D, displicate split sample; No., number; e, estimated; <, less than method detection limit]

			īT	RACE METALS				
Station No.	Arsenic	Cadmium	Chromium	Copper	Lead	Mercury	Nickel	Zina
1	<40	3	122	203	919	1.4	29.3	574
2	<60	<2.7	41.3	240	657	1.2	29.2	527
3	<30	5	91.9	281	1,100	2	39.6	557
4	<30	<2.8	23.1	116	210	e6	18.4	225
5	<20	2.7	49.5	148	532	1.4	24.8	276
5-D	2 5	<3.0	56.7	169	590	1.3	27.8	310
6	<30	6	112	448	925	2.3	43.2	879
7	<60	<2.6	37.9	225	360	1	31.6	481
8	<30	<2.8	26.6	85.7	156	1.4	15.5	220
9	<45	8.3	344	710	1,320	6.3	70.6	1,070
10	<60	14.8	182	574	979	- 3.3	59.9	982
11	<25	6.9	66.3	389	1,270	2.8	37.3	778
12	<30	8.2	101	416	1,370	2.6	45.5	880
13	<35	8.9	78.6	478	1,410	3	44.6	882
14	<30	7.9	87.6	387	1,360	3.2	40.1	794
15	₫ 0	9.7	78.2	605	1,260	2.5	44.8	965

Table 1. Geographic distribution of trace metals and organic compounds in sediment cores, Muddy River, Massachusetts, October 1997—Continued

ORGANOCHLORINE PESTICIDES

Station No.	Aldrin	Alpha- bhc	Beta- bhc	Delta- bhc	Delta- bah	Gamma- bah	Alpha- chlordane	Gamma- chlordane	Chlor- dane (Tech)	"4,4'- DDD"	"4,4'-DD
1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.038	0.03	2.0	3.2	0.23
2	.022	<.007	<.007	<.007	<.007	<.007	.023	<.007	<.7	.37	-16
3	<.01	<.01	<.01	<.01	<.01	<.01	.11	.091	<1	2	-26
4	<.01	<.01	<.01	<.01	<.01	<.01	.035	.019	<.1	.56	.12
5	<.01	<.01	<.01	<.01	<.01	<.01	.041	.035	<.1	1.12	.09
6	<.01	<.01	<.01	<.01	<.01	<.01	.12	.096	<.1	.5	-16
7	<.008	<.008	<.008	<.008	<.008	<.008	.008	<008	<.8	.026	.011
8	<.003	<.003	<.003	<.003	<.003	<.003	.0069	<.003	<.3	.046	.012
9	<.02	<.02	<.02	<.02	<.02	<.02	.088	.096	<.2	1.3	38
10	<.01	<.01	<.01	<.01	<.01	<.01	.041	.04	<.1	.62	31
11	<.01	<.01	<.01	<.01	<.01	<.01	.081	.049	<.1	.63	.17
12	<.02	<.02	<.02	<.02	<.02	<.02	.1	.062	<.2	.66	.19
13	<.02	<.02	<.02	<.02	<.02	<.02	.072	.05	<.2	.51	.16
14	.073	<.02	<.02	<.02	<.02	<.02	.089	.058	<.2	.63	.18
14-D	.075	<.02	<.02	<.02	<.02	<.02	.072	.051	<.2	.53	-14
15	.048	<.02	<.02	<.02	<.02	<.02	.053	.034	<.2	.29	.15

ORGANOCHLORINE PESTICIDES—Continued

Station No.	"4,4'- DDT"	Dieldrin	Endo- sulfan i	Endo- suifan il	Endo- sulfan sulfate	Endrin	Endrin alde- hyde	Endrin ketone	Hepta- chior	Hepta- chlor epoxide	Methox- ychlor	Toxa phen
1	0.11	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<20
2	.038	<.007	<.007	<.007	<.007	<.007	<.007	.1	<.007	<.007	<.007	<.7
3	.05	.07	<.01	<.01	<.01	<.01	<.01	<.01	<.01	<.01	<.01	<1
4	.033	.013	<.01	<.01	<.01	<.01	<.01	.095	<.01	<.01	<.01	<1
5	.013	.015	<.01	<.01	<.01	<.01	<.01	.0093	<.01	<.01	<.01	<1
6	.028	.039	<.01	<.01	<.01	<.01	<.01	.037	<.01	<.01	<.01	<1
7	.021	<.008	<.008	<.008	<.008	<.008	<.008	.046	<.008	<.008	<.008	<8
8	.013	<.003	<.003	<.003	<.003	< .003	<.003	.043	<.003	<.003	<.003	<3
9	.055	.036	<.02	<.02	<.02	<.02	<.02	.056	<.02	<.02	<.02	<2
10	.04	.015	.046	<.01	<.01	.026	<.01	<.01	<.01	<.01	<.01	<1
11	.34	.05	<.01	.099	<.01	<.01	<.01	<.01	<.01	<.01	<.01	<1
12	.028	<.02	<.02	<.02	<.02	<.02	<.02	<.02	<.02	<.02	<.02	Q
13	.011	<.02	<.02	<.02	<.02	<.02	<.02	<.02	<.02	<.02	<.02	Q
14	<.02	.057	<.02	<.02	<.02	<.02	<.02	<.02	<.02	<.02	<.02	<2
14-D	<.02	.046	<.02	<.02	<.02	<.02	<02	<.02	<.02	<.02	<.02	<02
15	<.02	<.02	<.02	<.02	<.02	<.02	<.02	<.02	<.02	<.02	<.02	<02

Table 1. Geographic distribution of trace metals and organic compounds in sediment cores, Muddy River, Massachusetts, October 1997—Continued

Station	•				Arocior				
No.	1016	1221	1232	1242	1248	1254	1260	1262	1268
1	<0.04	<0.04	<0.04	0.078	<0.04	<0.04	0.17	<0.04	<0.04
2	<.04	<.04	<.04	<.04	<.04	<.04	.11	<.04	<.04
3	<.04	<.04	<.04	.22	<.04	<.04	<.04	<.04	<.04
4	<.03	<.03	<.03	.081	<.03	<.03	.092	<.03	<.03
5	<.03	<.03	<.03	<.03	<.03	.14	.14	<.03	<.03
6	<.06	<.06	<.06	<.06	<.06	.43	.23	<.06	<.06
7	<.04	<.04	<.04	<.04	<.04	<.04	<.04	<.04	<.04
8	<.04	<.04	<.04	<.04	<.04	.04	<.04	<.04	<.04
9	<.06	<.06	<.06	.33	<.06	1.3	.93	<.06	<.06
10	<.06	<.06	<.06	.16	<.06	.77	.45	<.06	<.06
11	<.04	<.04	<.04	.56	<.04	1.7	.71	<.04	<.04
12	<.04	<.04	<.04	.57	<.04	2.2	.62	<.04	<.04
13	<.05	<.05	<.05	.67	<.05	1.7	.73	<.05	<.05
14	<.04	<.04	<.04	.6	<.04	1.9	.58	<.04	<.04
14-D	<.04	<.04	<.04	.67	<.04	1.7	.6	<.04	<.04
15	<.05	<.05	<.05	.43	<.05	1.6	.59	<.05	<.05

POL	VAROMA	TIC HYDR	OCARE	SONS

Station No.	Acenaph- thene	Acenaph- thylene	Anthracene	Benzo (a) anthracene	Benzo (b) fluoran- thene	Benzo (k) fluoran- thene	Benzo (a) pyrene	Benzo (ghi) perylene	Biphen
1	1.7	0.43	3.8	13	19	7	13	8.7	0.077
2	1.9	.53	5.5	19	26	8	17	11	.087
3	1.2	.23	3.3	8.5	11	4	7.8	5.1	.085
4	5.2	.43	9.2	24	30	8.6	23	13	.34
5	.54	.13	1.3	4.5	6.2	2.4	4.3	3	<.045
6	.57	.23	1.6	6.1	9.5	3.6	6.3	4.9	<.084
7	.76	.48	3.3	12	18	6.1	11	7.9	.08
8	.46	.39	1.7	7.9	18	6.2	11	8.5	.059
9	2.9	.81	. 8	18	26	9.4	18	13	.44
10	.38	.2	.66	3.8	7.8	. 2.3	4.6	3.8	<.086
11	1.9	.36	3.5	11	15	5.7	11	6.9	.12
12	1.1	.3	2.3	8.9	13	5.1	8.8	6.2	.099
13	1.4	.37	2.8	9.3	13	5.3	8.8	6.1	.14
14	.96	.33	2.2	7.7	11	4.6	8.1	5.6	.1
14-D	1.5	.44	3.1	10	16	6.2	11	7.5	:14
15	1.1	.32	2.3	8.5	13	4.3	8.7	5.8	.14

Table 1. Geographic distribution of trace metals and organic compounds in sediment cores, Muddy River, Massachusetts, October 1997—Continued

		P	OLYAROM	ATIC HYDRO	CARBONS-	-Continue	d		
Station No.	Chrysene	Dibenzo (a.h) anthracene	Fluoran- thene	Fluorene	"Indeon (1,2,3-cd) pyrene"	Naph- thaiene	2-Methyl- Naptha- lene	Phenan- threne	Pyrene
1	17	2.5	37	2.7	11	0.53	0.56	20	31
2	24	3.3	55	2.8	75	.41	.34	27	44
3	10	1.5	22	1.6	6.3	.5	.29	14	18
4	27	3.8	64	4.9	16	2.7	1.6	53	55
5	5.9	.8	12	.63	3.8	.17	.13	5.6	9.8
6	8.4	1.2	16	.99	5.7	.18	.43	8.2	14
7	16	2.2	32	1.3	10	.39	.28	11	26
8	12	2.2	19	.72	10	.27	.172	4.9	14
9	22	3	49	4	15	3	1.3	37	39
10	6.1	.86	10	.46	4.2	.27	.22	4.3	8.5
11	14	1.9	26	2.2	8.5	.49	1.2	20	23
12	12	1.5	23	1.5	7.3	.3	.34	14	20
13	12	1.5	24	. 2	7.3	.59	.55	16	21
14	10	1.5	20	1.3	6.7	.29	.43	11	18
14-D	14	2	25	1.9	9	.49	.51	17	23
15	11	1.5	21	1.5	7.1	.47	.51	13	19

Table 2. Geographic distribution of total petroleum hydrocarbon in sediment cores, Muddy River, Massachusetts, October 1997

[Total petroleum hydrocarbons: Concentrations are in parts per million. Standard analyses were performed in accordance with Methods for Chemical Analysis of Water and Wastes (U.S. Environmental Protection Agency, 1983), EPA-600/4/79-020, Test; Methods for Evaluating Solid Waste, SW-846 (U.S. Environmental Protection Agency, 1996), or standard methods for the examination of water and wastewater (American Public Health Association, 1995. D, duplicate split sample; No., number]

Station No.	Total petroleum hydrocarbon	Station No.	Total petroleum hydrocarbon
1	27,000	9	28,000
2	21,000	10	19,000
3	25,000	11	22,000
4	9,800	12	32,000
5	11,000	13	34,000
6	30,000	14	34,000
7	16,000	14-D	30,000
8	4,700	15	22,000

Table 3. Geographic distribution of total organic carbon in sediment cores, Muddy River, Massachusetts, October 1997

[All concentrations are in parts per million. Total organic carbon: Analyses were performed in accordance with New England Regional Laboratory Standard Operating Procedure (SOP) 14.1 using a Dohrmana DC-190 TOC Analyzer (William J. Andrade, Office of Measurement and Evaluation Division of the U.S. Environmental Protection Agency. Regiq I, written commun., 1997). D, duplicate split sample; No., number]

Station No.	Total organic carbon	Station No.	Total organic carbon
1	93,143	9	130,185
2	86,477	10	101,172
3	86,523	11	97,130
4	70,333	12	97,282
5	49,255	13	127,389
6	105,433	14	128,548
7	70,381	14-D	118,244
8	39,100	15	114,825

Table 4. Geographic distribution of grain size in sediment cores, Muddy River, Massachusetts, October 1997

[Grain-analysis was performed using ASTM Method D422-63 (American Society for Testing and Materials, 1980). Gravel: sieve number 4, greater than 4.75 millimeters. Coarse sand: Sieve number 10, less than 4.75 millimeters, greater than 2 millimeters. Medium sand: sieve number 40, less than 2.0 millimeters, greater than 0.425 millimeter. Fine sand: sieve number 200, less than 0.425 millimeter, greater than 0.075 millimeter. Silt and clay: less than 0.075 millimeter. D, duplicate split sample; No., number 1

	G	irain size (as percenta	ge retaine	d)
Station No.	Gravel	Coarse	Medium sand	Fine sand	Silt and clay
1	0	0.4	12	28.1	57.4
2	1.3	8.67	29.3	23.4	37.4
3	.2	.4	10	37.7	51.7
4	1.9	6.6	34.7	33.5	23.3
5	2.1	7	24.5	39.7	26.7
6	.1	1.2	26.8	23.7	48.2
7	.4	5.4	31.6	24	61.4
8	6.4	11.5	44.6	22.9	14.6
9	0	4.1	31.1	22.2	42.6
10	.1	2.9	28.2	25.1	43.7
11	8	.2	10.1	60.3	29.4
12	.3	1.5	15.9	46	36.3
13	0	2.3	11.2	26.5	60
14	0	2.2	16.6	30.3	50.9
14-D	0	.5	16.3	31.2	52
15	0	.2	18.3	23.8	42.9

Table 5. Geographic distribution of percentage of moisture in sediment cores, Muddy River, Massachusetts, October 1997

[D, duplicate split sample; No., number]

Station No.	Percentage of moisture	Station No.	Percentage of moisture
1	58	9	73
2	56	10	71
3	56	11	54
4	43	12	61
5	45	13	64
6	70	14	58
7	58	14-D	59
8	50	15	40

Table 6. Geographic distribution of Toxicity Characteristic Leaching Procedure constituents in sediment cores, Muddy River, Massachusetts, October 1997

[Trace metals: Concentrations are in parts per million. TCLP was performed in accordance with method 1311 (U.S. Environmental Protection Agency, 1992). Sample preparation method 3010A and ICP method 6010B (U.S. Environmental Protection Agency 1996). Mercury: Only samples with a total mercury concentration of about 4 ppm or greater were analyzed. TCLP was performed in accordance with method 7470A (U.S. Environmental Protection Agency, 1996). D, duplicate split sample; No., number; <, less than method detection limit; —, not sampled]

Station No.	Silver	Arsenic	Barium	Cadmium	Chromium	Mercury	Lead	Selenium
1	<0.06	<0.25	0.43	<0.06	<0.03	-	1.1	<0.20
2	<06	<.25	.56	<.06	<.03		1.4	<.20
3	<.06	<.25	.54	<.06	<.03		2.2	<.20
4	<.06	<.25	.4	<.06	<.03	<0.50	.76	<.20
5	<.06	<.25	.44	<.06	<.03		1.7	<.20
5-D	<.06	<.25	.47	<.06	<.03	name .	1.8	<.20
6	<.06	<.25	.5	<.06	<.03		.79	<.20
7	<.06	<.25	.45	<.06	<.03	-	.28	<.20
8	<.06	<.25	.29	<.06	<.03	1988	.7	<.20
9	<.06	<25	.53	.06	<.03	<.50	1.8	<.20
10	<.06	<.25	.45	.14	<.03	<.50	.87	< 20
11	<.06	<.25	.46	<.06	<.03		1.2	<.20
12	<.06	<.25	.5	<.06	<.03		1.4	< .20
13	<.06	<.25	.51	<.06	<.03	-	1.3	<.20
14	<.06	<25	.61	<.08	<.03		2.9	<.20
15	<.06	<25	.64	<10	<.03	-	2.8	<.20

Station No.	Location	Excess of DEP Lined Landfill Reuse Criteria	Approximate Depth of Contamination
I	Southern portion of Leverett Pond	PAHs, TPH	2.5'
2	Central portion of Leverett Pond	As, PAHs, TPH	2.5'
3	Muddy River; approx. 480' northeast of the Tannery Brook Drain	PAHs, TPH	2.5'
4	Muddy River; approx. 220' northeast of the Longwood Avenue Drain	TPH, PAHs	2'
5	Muddy River; approx. 100' north- northeast of the Longwood Avenue Bridge	ТРН	1.5'
6	Muddy River; approx. 220' northeast of the Muddy River Footbridge	ТРН	3'
7	Adjacent and prior to the Brookline Gatehouse	As, PAHs, TPH	0.5'
8	Upper Fens; between Brookline Avenue Gatehouse and the Emmanuel College Drain (Overflow)	PAHs	2.5'
9	Back Bay Fens; approx. 220' southeast of the Fen Bridge	As, PCBs, PAHs, TPH	1.5'
10	Back Bay Fens; southwestern side of lagoon area and approx. 80' east-northeast of western footbridge	As, TPH	1.5'
11	Back Bay Fens; approx. 90' north of Stony Brook Overflow (Boston Gatehouse No. 1)	PCBs, PAHs, TPH	6.5'
12	Back Bay Fens; approx. 40' south of the Agassiz Bridge	PCBs, PAHs, TPH	6.5'
13	Back Bay Fens; approx. 340' east- northeast of the Agassiz Bridge	PCBs, PAHs, TPH	2.5'
14	Back Bay Fens; approx. 600' south of the Boylston Street Bridge	PCBs, PAHs, TPH	0.5'
15	Back Bay Fens; approx. 160' south of the Boylston Street Bridge	PCBs, PAHs, TPH	3'
Notes:			

Parameter(s) in

Notes:

As - arsenic

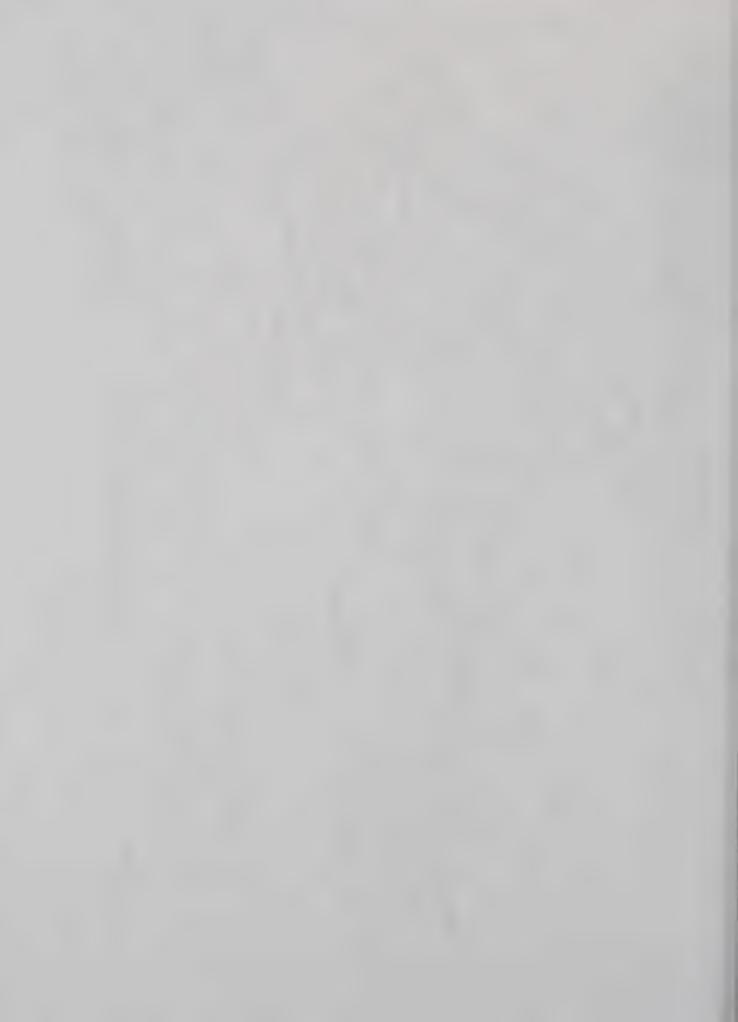
PCBs - polychlorinated biphenyls

PAHs - polyaromatic hydrocarbons

TPH - total petroleum hydrocarbons

Total Lead and TCLP Lead Sediment Sample Results Muddy River Restoration Project

	Total Lead mg/kg	TCLP Lead mg/L
Samples Collected by the ACOE (1996)		
96-2 (Top 24")	1000	3.1
96-5 (Top 24")	1500	2.7
96-6 (Top 24") 96-6 (Bottom 24")	2000 1600	5.4 4.1
96-7 (Top 20")	1800	6
Samples collected by the USGS (1997)		
Station No.		
1	919	1.1
2	657	1.4
3	1100	2.2
4	210	0.76
5	532/590	1.7/1.8
6	925	0.79
7	360	0.28
8	156	0.7
9	1320	1.8
10	979	0.87
11	1270	1.2
12	1370	1.4
13	1410	1.3
14	1360	2.9
15	1260	2.8



Attachment II Landfill Disposal Criteria



Department of Environmental Protection Policy # COMM-97-001

TABLE 1

CONTAMINANT LEVELS FOR SOIL REUSE AT LANDFILLS

CONTAMINANT	Reuse Levels (mg/kg)²		
	Lined Landfills	Unlined Landfill	
Total Arsenic	. 40	40	
Total Cadmium	80	30	
Total Chromium	1,000	1,000	
Total Lead	2,000	1,000	
Total Mercury	10	10	
Total Petroleum Hydrocarbons (TPH)	5,000	2,500	
Total PCBs ^b	< 2	< 2	
Total SVOCs ^c	100	100	
Total VOCs ^d	10	4	
Conductivity ^e (umhos/cm)	8,000 umhos/cm	4,000 umhos/cm	
Listed or Characteristic Hazardous Waste (TCLP) ^t	NONE	NONE	

TABLE 1 NOTES:

- The reuse levels are expressed as total levels in mg/kg and apply to reuse of soil as daily cover, intermediate cover, and pre-capping contour material at lined landfills and unlined landfills as described in this Policy.
- b Total concentrations of polychlorinated biphenyls EPA Method 8080.
- c Total concentrations of compounds listed in EPA Method 8270.
- d Total concentration of compounds listed in EPA Method 8260.
- e For soil which may be expected to contain elevated NaCl.
- TCLP testing shall be performed for metals or organic compounds when the total concentrations in the soil are above the theoretical levels at which the TCLP criteria may be exceeded. For guidance parties shall consult United States Environmental Protection Agency, Memorandum #36, "Notes on RCRA Methods and QA Activities", pp. 19-21, Gail Hanson, January 12, 1993.

[Please note that the methods specified in footnotes d, e, and f indicate the universe of chemicals to be added up in calculating the total concentrations for these classes of contaminants. Section 5.0 of this Policy provides guidance for determining which specific chemicals must be considered chemicals of concern (e.g., contaminants) within the soil. This Policy does not specify the analytical test methods to be used to quantify the specific contaminants. Readers can consult 310 CMR 40.0017 Environmental Sample Collection and Analysis, 310 CMR 30.110 Criteria. Procedures for Determining Which Wastes are to be Regulated as Hazardous Waste or Non-Hazardous Waste and 310 CMR 30.151 Representative Sampling Methods for additional information which may be applicable to the selection of appropriate sampling and analytical methods.]



Oil Contaminated Soils Evaluation Form

TCLP Parameter	Reg. Limit		Reg. Limit	Detection
METALS	: mg/l	TOTAL VOLATILES	rieg. cimit	Detectori
Arsenic	5	Tetrachloroethene		1
	100	Trichloroethene		
Barium		Chlorobenzene		
Cadmium	1			
Chromium	5 -	Trichlorofluoromethane		
Lead	5	1,1,2-Trichloroethane	None	
Mercury	0.2	1,1,2-Trichloro-1,2,2-Trifluoromethane	Detected	
Selenium	1	Carbon Tetrachloride		
Silver	5	Methylene Chloride		
		1,1,1-Trichloroethane		
VOLATILES		Ortho-Dichlorobenzene		
Benzene	0.5	OR		
Carbon Tetrachloride		ORGANIC HALOGENS		
Chlorobenzene	100	TOX	1000ppm	
Chloroform	6			
1,2-Dichloroethane	0.5			
	0.7	PCB's	50 ppm	
1,1-Dichloroethene		PODS	эо рран	JI
Methyl Ethyl Ketone	200		2 <ph<12.5< td=""><td>ì</td></ph<12.5<>	ì
Tetrachloroethene	0.7	pH	2-01-12.5	
Trichloroethene	0.5			
Vinyl Chloride	0.2	Flashpoint	>140 Degrees F	<u> </u>
SEMI-VOLATILES		REACTIVITY		
* m-Cresol	200	Sulfide	500 ppm	
o-Cresol	200	Cyanide	250 ppm	
	200	O yaimao		
p-Cresol	The state of the s			
1,4-Dichlorobenzene	7.5	Sample Hold Times:		
2,4-Dinitrotoluene		Sample Hold Times.		
Hexachlorobenzene	0.13			
Hexachlorobutadiene				
Hexachloroethane	3			
Nitrobenzene	2			
Pentachlorophenol	100	QA/AC:		
Pyridine	5			
2,4,5-Trichlorophenol	400			
2,4,6-Trichlorophenol	2			
DECTIONS		Test Methods:		
PESTICIDES		I est Intentions.		
Chlordane	0.03			
Endrin	0.02			•
Heptachlor	0.008			
Heptachlor Epoxide	0.008			
Lindane	0.04	Laboratory:		
Methoxychlor	10			
Toxaphene	.5			
HERBICIDES				
2,4-D	10			
	10			
2,4,5-TP				

^{*} All Testing Must be Performed Using SW-846 Test Methods

AGGREGATE INDUSTRIES ENVIRONMENTAL SERVICES

1101 Turnpike Street, Stoughton, MA 02072 Phone (781) 341-5500 Fax (781) 341-2440

STOUGHTON RECYCLING FACILITY

1101 Turnpike Street, Stoughton, MA 02072 Class A Recycling Permit #S-96-003 EPA ID MAD981213531

SOIL RECYCLING TESTING REQUIREMENTS

TEST REQUIRED	TEST FREQUENCY	GAS CONTAMINATED	OIL CONTAMINATED
ТРН	100 cubic yards		50,000 ppm
VOLATILE ORGANICS EPA 8260 (or equivalent)	100 cubic yards (gas cont. soil)	500 ppm total VOC's 5 ppm total chlor. solvents	***************************************
	500 cubic yards (oil cont. soil)	**************************************	500 ppm total VOC's 5 ppm total chlor, solvents
FLASHPOINT	500 cubic yards	140 F min.	140 F min.
PH	500 cubic yards	Between 2 and 12.5	Between 2 and 12.5
REACTIVITY Sulfide & Cyanide	500 cubic yards	Non-reactive	Non-reactive
PCB's	500 cubic yards	Less than 1 ppm	Less then 1 ppm
METALS: Total*	500 cubic yards	TOTAL (ppm)	TOTAL (ppm)
Arsenic Cadmium Chromium		30 30 500	30 30 500
Mercury Lead	1	10 1,000	10 1,000

^{*} If Total Metal levels indicate that mathematically, TCLP levels can be exceeded, a TCLP analysis is required.

GC/FID is required if source of contamination is not known.

Total Organic Carbon (TOC) test is required if there is reason to believe TOC is greater than 10%.

No soil shall be accepted for recycling if any hazardous contaminant is present or if any free liquids are present.

BTES/1100,STO 4/1/00



LOGANO A WASTE MANAGEMENT OF

P.O. Box 144 Portland, CT 06480 (860) 342-4866 Fax

April 28, 2000

Kevin Dillaway CDM 1 Cambridge Place 50 Hampshire St. Boston, MA 02139

Scope of Work:

Logano Waste Management to provide 45 cubic yard dump trailer(s) for the live loading of approximately 170,000 Cubic Yards of soil from your site in Boston, Massachusetts. Transport waste to a fully permitted Unlined Landfill for use as daily cover.

Cost:

Transportation & Disposal:	\$ 28.00 / Ton
Site / Facility Demurrage:	\$ 85.00 / Hour
	2 Hours Site, 2 Hours Facility @ N/C

**30 Ton Minimum Per Load **

Pricing subject to Temporary Fuel Surcharge

Pricing Not Predicated on Prevailing Wage Rate

Pricing subject to Local, State and Federal taxes and/or fees where applicable.

Payment Terms:

Net 30 Days

Net Weight:

60,000 Lbs.

Analytical:

Mass Table 1 L.S.P. Letter

Pre-Shipment Requirements: Approval Time Frame:

1 Week

Pricing Expires:

June 30, 2000

General Conditions apply to the above quotation.

Billy Torello

Hazardous Waste Division Manager

illy relie

Please sign below to designate approval, and fax to (860) 342-4819.

Signature

Date

Specializing in Transportation & Disposal of Hazardons, Nonhazardous & Asbestos Waste



A WASTE MANAGEMENT CONTENT

P.O. Box 144 Portland, CT 06480 (860) 342-0667 (860) 342-4866 Fax

April 20, 2000

Attn: Kevin C.D.M. 1 Cambridge Place 500 Hampshire St. Cambridge, MA 02139

Scope of Work:

Logano Waste Management to provide 45 cubic yard dump trailer(s) for the live loading of approximately 170,000 Cubic Yards of Non Hazardous Soil from your site in Boston, Massachusetts. Transport waste to a fully permitted Subtitle "D" Landfill for use as "daily cover."

Cost:

Transportation & Disposal:	\$ 58.50 / Ton – Fitchburg Landfill \$ 59.50 / Ton – Barre Landfill
Site / Facility Demurrage:	\$ 85.00 / Hour 2 Hours Site, 2 Hours Facility @ N/C

** 30 Ton Minimum Per Load **

Pricing subject to Temporary Fuel Surcharge

Pricing Not Predicated on Prevailing Wage Rate

Pricing subject to Local, State and Federal taxes and/or fees where applicable.

Payment Terms:	Net 30 days
Net Weight:	48,000 Lbs.
Analytical:	Mass Table 1
Pre-Shipment Requirements:	LSP Letter, BOL
Approval Time Frame:	1 Week
Pricing Expires:	May 31, 2000

General Conditions apply to the above quotation.

Beth Roccapriore
Project Development

Please sign below to designate approval, and fax to (860) 342-4819.

Signature	Date
Signature	Dato



LOGANO

P.O. Box 144 Portland, CT 06480 (860) 342-0667 (860) 342-4866 Fax

April 20, 2000

Attn: Kevin C.D.M. 1 Cambridge Place 500 Hampshire St. Cambridge, MA 02139

Scope of Work:

Logano Waste Management to provide 45 cubic yard dump trailer(s) for the live loading of approximately 170,000 Cubic Yards of Hazardous TSCA PCB Soil from your site in Boston, Massachusetts. Transport waste to a fully permitted Treatment, Storage & Disposal Facility (TSDF).

Cost:

Transportation & Disposal:	\$ 233.00 / Ton
6- Mil Poly Liner:	Included
Site / Facility Demurrage:	\$ 85.00 / Hour
	2 Hours Site, 2 Hours Facility @ N/C
NY & MA Haz Tax:	Included

** 22 Ton Minimum Per Load **

Pricing subject to Temporary Fuel Surcharge
Pricing Not Predicated on Prevailing Wage Rate
Pricing subject to Local, State and Federal taxes and/or fees where applicable.

Payment Terms: Net 30 days Net Weight: 48,000 Lbs.

Pre-Shipment Requirements: Signed Waste Profile

Approval Time Frame: 1 Week

Pricing Expires: May 31, 2000

General Conditions apply to the above quotation.

Beth Roccapriore
Project Development

Please sign below to designate approval, and fax to (860) 342-4819.

Signature Date



WASTE MANAGEMENT COMPANY

P.O. Box 144 Portland, CT 06480 (860) 342-0667 (860) 342-4866 Fax

April 20, 2000

Attn: Kevin C.D.M. 1 Cambridge Place 500 Hampshire St. Cambridge, MA 02139

Scope of Work:

Logano Waste Management to provide 45 cubic yard dump trailer(s) for the live loading of approximately 170,000 Cubic Yards of Hazardous Lead Soil with Non TSCA PCB'S from your site in Boston, Massachusetts. Transport waste to a fully permitted Treatment, Storage & Disposal Facility (TSDF).

Cost:

Transportation & Disposal:	\$ 199.40 / Ton
6 - Mil Poly Liner:	Included
Site / Facility Demurrage:	\$ 85.00 / Hour
	2 Hours Site, 2 Hours Facility @ N/C
NY & MA Haz Tax:	Included

** 22 Ton Minimum Per Load ** Material Must Be <3" X <3" X <3 " Pricing subject to Temporary Fuel Surcharge

Pricing Not Predicated on Prevailing Wage Rate Pricing subject to Local, State and Federal taxes and/or fees where applicable.

Payment Terms:

Net 30 days

Net Weight:

48,000 Lbs.

Pre-Shipment Requirements:

Signed Waste Profile and Sample

Approval Time Frame:

1 Week

Pricing Expires:

May 31, 2000

General Conditions apply to the above quotation.

Project Development

Please sign below to designate approval, and fax to (860) 342-4819.

Signature

Date

Specializing in Transportation & Disposal of Hazardous, Nonhazardous & Asbestos Waste

CROSSROADS PRICE COMMUNICATION FORM

CROSSROADS PRICE COMMUNICATION FOR	Project Sta	Today's Date: 4 28 00 Project Start Date: Need Price By:	
**************************************	***********	**********	
171 m. 174 m. 1 m. 1 m. 1 m. 1	Type of Business: Base D Company: (MM) Dra Fax: 617 45)		
Generator Name			
Address	City	State Zip	
SECTION II Waste Description and Codes (if applicable): Process Generating Waste: Quantity: Tons Cubic Yards Price Requested For: Disposal only Trans only Transportation Required: None Dumptrailers Other Brokers Bidding:	other:	*******	
Competitor Information:			
SECTION III	**************	************	
Disposal Facility: Waste Management Disposal Service Disposal Price: \$ \frac{1}{70} \text{ob} \text{per} \text{ton} Transportation Price: \$ \frac{1}{10000000000000000000000000000000000	Maine State Tax: \$ 500	per ton	

All pricing is contingent upon approval to accept subject waste materials for disposal. Waste priced as approved, invoiced as received. This quotation is good for 30 days. When the generator is unknown to us, we reserve the right and have a legal obligation to void its proposal should we be currently involved in discussions, negotiations, or under contract directly with the generator for the disposal of this waste

FACT SHEET

SITE:

Glenview Sand and Gravel Stedman Street Chelmsford, MA 01824

OPERATOR:

Patrick Hannon
Amalgamated Transportation Inc.
100 Structevant Street
Somerville, MA 02145

(617) 782-7777 (617) 666-4053 FAX

ADMINISTRATIVE CONSENT ORDER:

ACO-NE-97-4002

Effective date: August 14, 1997

ENGINEER OF RECORD:

Camp Dresser & Mckee Inc. 10 Cambridge Center Cambridge, MA 02142 Daniel Duffy, Project Engineer

File Number: 122909 page 2

Proposal:

An unpermitted solid waste landfill has been identified to exist on the Glenview Sand and Gravel Property ("Glenview"), adjacent to the City of Lowell, Westford Street Landfill. The bulk of the MSW waste on the Glenview site was relocated to the Westford Street Landfill as part of the closure of that landfill. Some waste materials have been identified as remaining on the Glenview property. MASS Gravel, Inc. (MGI) proposes to remediate the conditions on the Glenview property in two (2) phases. The first phase will effect interim grading in the area from which waste was removed as part of the Westford Street Landfill Closure. The second phase will continue fill the property and construct permanent storm water control facilities.

The first phase will bring approximately 75,000 cu.yds. of soil to the site. The project will fill an area of approximately 4 acres - from which MSW waste material was previously removed - to an elevation of approximately 150 ft. Mean Sea Level (msl).

In the second phase MGI proposes to continue filling on approximately 14 acres of the site to an elevation of 165 ft. msl. Phase 2 will require approximately 675,000 cu.yds. of fill.

This approval is ONLY for the purpose of interim grading for Phase 1, of the proposed project.

Soils from projects other than the CA/T project and used for fill at the Site shall not exceed the following standards:

CONTAMINANT LEVELS FOR SOIL REUSE AT UNLINED LANDFILLS

CONTAMINANT	Mense Peach /mal wal
Total Arsenic	40 :
	30
Total Cadmium	1000
Total Chromium	1000
Total Lead	
	10
Total Mercury.	Less than 2
Total PCB	100
Total SVOCs	
Total TPH	2500
	4 .
Total VOCs	4000 (umbos/cm)
Conductivity	
TCLP	Pass
Other Contaminants	MCP method 1, S-1 Soil & GW-1
Office Contaminants	

Sampling and analysis of soils originating from projects other than the CA/T, to ensure they meet the above limits, shall be accomplished in accordance with the procedures contained in DEP's "Contaminated Soil Policy" (BWP #94-037) or any successor policy.

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CDM Camp Dresser & McKee Inc.

One Cambridge Place 50 Hampshire Street Cambridge, MA 02139 Phone: 617-452-6000 Fax: 617-452-8000

Project: Muddy River Client: Boston Parks Department

Job No. 1517-28449-EIR.ENVIMP.PREFILING Date: 10-04-01

Phone in Phone out Current Project Prospective Project/Marketing Administrative Other

Made by/Received by: Made by Erika Lund (CDM)

Talked with: William Reinhardt (Aggregate Industries, 781-341-5500)

Subject: Muddy River Dredge Material Disposal

Distribution: B. Conklin, D. Christian, C. Kaslick

Discussion:

I spoke with Bill regarding Aggregate's requirements for accepting dredged material at their facility. He informed me that the material has to be dewatered before being sent to the facility. However, it is LSP opinion whether the in-situ analytical sample data is representative of the dewatered samples. Aggregate will not accept more than 500 tons/day of dredge material.

• Action Required (what, who, when):

Bill was going to send a fax which had pricing information and the frequency of sampling requirements.

CDM Camp Dresser & McKee Inc.

One Cambridge Place 50 Hampshire Street Cambridge, MA 02139 Phone: 617-452-6000

Fax: 617-452-8000

Project: Muddy River Client: Boston Parks Department

Job No. 1517-28449-EIR.ENVIMP.PREFILING Date: 10/04/01

Phone in Phone out Current Project Prospective Project/Marketing Administrative Other

Made by/Received by: Made by Erika Lund (CDM)

Talked with: Beth Rocapriore (Waste Management, 860-342-5053 x117)

Subject: Muddy River Dredge Material Disposal

Distribution: B. Conklin, D. Christian, C. Kaslick

Discussion:

I spoke with Beth regarding Waste Management's requirements for accepting dredged material at their facility. She informed me that the material has to be dewatered before being sent to the facility. Also, Waste Management requires the analytical sample results from dewatered samples. However, it is the LSP opinion of the frequency of sampling.

• Action Required (what, who, when):

Beth is going to send me pricing information via fax.

CDM Camp Dresser & McKee Inc.

One Cambridge Place 50 Hampshire Street Cambridge, MA 02139 Phone: 617-452-6000 Fax: 617-452-8000

Project:

Muddy River

Client:

Boston Parks Department

Job No.

1517-28449-EIR.ENVIMP.PREFILING

Date:

11/21/01

Phone in Phone out Current Project Prospective Project/Marketing Administrative Other

Made by/Received by:

Made by Erika Lund (CDM)

Talked with:

Eugene Lunney (Special Waste Specialist, BFI 781-289-0500 x225)

Subject:

Muddy River Dredge Material Disposal

Distribution:

B. Conklin, D. Christian, C. Kaslick

Discussion:

I spoke with Eugene regarding BFI's requirements for accepting dredged material at their facility. He informed me that the facility will only accept dewatered samples that have no free liquid. The samples must be analyzed as outlined in the Soil Policy Requirements for Reuse. The analytical sample results can be from in-situ material, if the chemical characterization is not changed by dewatering. An LSP opinion would be required that the in-situ data is representative of the dewatered samples. The sampling frequency of one sample every 500/cy is acceptable. However, the facility cannot accept more than 500 tons/day of material.

The cost of this is \$25/ton at the gate at Fall River facility.

Action Required (what, who, when):

CDM Camp Dresser & McKee Inc.

One Cambridge Place 50 Hampshire Street Cambridge, MA 02139 Phone: 617-452-6000

Fax: 617-452-8000

Project:

Muddy River

Client:

Boston Parks Department

Job No.

1517-28449-EIR.ENVIMP.PREFILING

Date:

11/21/01

Made by/Received by:

Made by Erika Lund (CDM)

Talked with:

Mike (Environmental Soil Management Inc, Loudon NH 603-783-0228)

Phone in Phone out Current Project Prospective Project/Marketing Administrative Other

Subject:

Muddy River Dredge Material Disposal

Distribution:

B. Conklin, D. Christian, C. Kaslick

Discussion:

I spoke with Mike regarding ESMI's requirements for accepting dredged material at their facility. He informed me that the facility will only accept dewatered material (less than 15% moisture). The analysis required is TPH method 8100 VOC, SVOC, RCRA 8 total metals and PCBs. They prefer analytical sample data from the stockpiled material, however if it is LSP opinion that the in-situ data is representative of the stockpile material, they will accept the in-situ sample analytical data. The sampling frequency is every 200/ton. The facility can only accept 200/tons per day of material possibly more depending on the soil matrix.

Action Required (what, who, when):

For specific cost information, he needs to see some data that we collected. We can fax this to him at 603-783-0104.



COMMONWEALTH OF MASSACHUSETTS EXECUTIVE OFFICE OF ENVIRONMENTAL AFFAIRS DEPARTMENT OF ENVIRONMENTAL PROTECTION

ONE WINTER STREET, BOSTON, MA 02108 617-292-5500

BOB DURAND Secretary LAUREN A. LISS Commissioner

JANE SWIFT Lieutenant Governor

May 26, 2000

Bruce Conklin Camp, Dresser & McKee, Inc. One Cambridge Place 50 Hampshire Street Cambridge, MA 02139 Re: Muddy River Restoration

Project, Sediment Quality Testing

Plan

Dear Mr. Conklin:

The Department of Environmental Protection (DEP) acknowledges receipt of your May 11, 2000 correspondence which forwarded to DEP for review and approval copies of the May 2000 Sediment Quality Testing Plan for the Muddy River Restoration Project. On May 15th I contacted you and indicated that I had reviewed the Plan and it appeared to be comprehensive and that I only had a few relatively minor comments but I needed to check with other DEP staff that had been requested to also review the document. It was agreed that I would attempt to provide you with formal comments the following week. This correspondence includes DEP's consolidated comments on the Sediment Quality Testing Plan.

Overall, the Plan is acceptable and DEP herewith authorizes CDM to proceed with the program subject to the following:

- (1) Page 1-2 states that 5 sediment samples were recently collected from Wards and Willow Pond and that the results are anticipated to be available at the end of May. Please forward to DEP copies of the results as soon as they are available.
- (2) Page 1-2 indicates that, along with other management options, In-State Unlined Landfills will be assessed for reuse/disposal of the Muddy River sediments. Please be advised that based upon DEP's knowledge of the characteristics and contaminant concentrations of the Muddy River sediments and the lack of available/permittable unlined landfills, this sediment management option is very

This information is available in alternate format by calling our ADA Coordinator at (617) 574-6872.

- unlikely to be viable and DEP suggests that CDM not expend a significant amount of time and resources assessing this option.
- (3) Page 2-2 and 2-3 list the parameters and testing methods that will be used. The list should be amended by indicating that TCLP testing would also be performed for any organic contaminant that exceeds the theoretical TCLP threshold.
- (4) It is DEP's understanding that by performing this sampling plan the proponent is expecting to be able to develop adequate information to allow for in-situ predredging characterization and classification of the sediment. Please be aware, that by approving this Plan DEP is not guaranteeing that all of the sediment can be fully classified in this manner. In addition, depending on the reuse/disposal option DEP may require that a verification sampling program be performed (see Bruce Haskell of your office for a description of the verification program being utilized at the Rubchinuk Landfill).
- (5) It is likely that much, if not all, of the dredged sediment will be required to be treated with lime, or another similar material, to control odors, particularly hydrogen sulfide, during excavation, transportation and reuse/disposal. Use of lime may also be beneficial by increasing the solids content of the sediment. This should be considered as the sediment sampling program is implemented.
- (6) Please keep in mind that the unlined and lined landfill criteria delineated in Table 1 of Interim Policy #COMM-97-001 (and referred to on page 1-2 of the report) are criteria that would allow contaminated soils/sediment to be <u>reused</u> at permitting/approved unlined and lined landfills without specific DEP review and approval. Higher levels of contamination could <u>potentially</u> be allowed based upon a specific DEP review and approval procedure as described in the referenced Policy. The Policy also requires that <u>disposal</u> at either lined or unlined Landfills receive a specific DEP approval.

Feel free to contact me at (617) 292-5698 if you have any questions or comments regarding this correspondence.

Very truly yours,

Steven G. Lipman, P.E.

Special Projects Coordinator

SGL/wp Conklin2

CC: Carl Noyes, Cortell and Assoc.
Rachel Freed, DEP/WW
Judy Perry, DEP/WW
John Carrigan, DEP/BWP



Camp Dresser & McKee Inc.

consulting engineering construction operations One Cambridge Place 50 Hampshire Street Cambridge, Massachusetts 02139 Tel: 617 452-6000 Fax: 617 452-8000

July 18, 2000

Mr. Steven Lipman, P.E. Special Projects Coordinator Department of Environmental Protection One Winter Street Boston, MA 02108

Subject:

Muddy River Restoration Project Sediment Quality Testing Plan

Dear Mr. Lipman:

This letter has been prepared to provide the results of sediment samples collected in Ward's and Willow Pond, and based on these results to request that certain parameters are analyzed less frequently than proposed in the Sediment Quality Testing Plan prepared by Camp Dresser & McKee Inc. (CDM). On April 24, 2000, the U.S. Army Corps of Engineers (ACOE) collected sediment samples at three locations from Ward's Pond and at two locations from Willows Pond. Samples were collected from two depth intervals at each location. The results of these analyses are summarized in the attached table. A figure that shows the sample locations is also provided.

The samples collected were analyzed for metals, including the Toxicity Characteristic Leaching Procedure (TCLP) analysis for lead, polycyclic aromatic hydrocarbons (PAHs), polychlorinated biphenyls (PCBs), total petroleum hydrocarbons (TPH), and pesticides. The results of samples collected from Ward's Pond are generally lower compared to the other areas within the Muddy River system. Based on the number of samples collected and the results of the analyses, CDM proposes to reduce the number of proposed samples from thirty-six to thirty samples and to analyze half of the samples for the full parameter suite as listed in Table 1. The other samples will be analyzed for extractable and volatile petroleum hydrocarbons, metals and TCLP if required. Since additional samples were also collected at Willow Pond, the sampling frequency and parameters for analysis has been reduced as listed in Table 1. The sampling frequency for each of the areas will remain the same as originally proposed.

As provided in your comments on the Sediment Quality Testing Plan (letter to CDM dated May 26, 2000), CDM has included TCLP testing for any organic contaminant that exceeds the theoretical TCLP threshold.



Mr. Steven Lipman July 18, 2000 Page 2

If you have any questions on this matter, please do not hesitate to contact me.

Very truly yours,

CAMP DRESSER & McKEE INC.

Bruce R. Conklin, P.E.

Brua R. Coull

Vice President

Attachments

cc: C. Kaslick

Table 1 Sampling Frequency and Proposed Parameters for Analysis

Muddy River Restoration Project

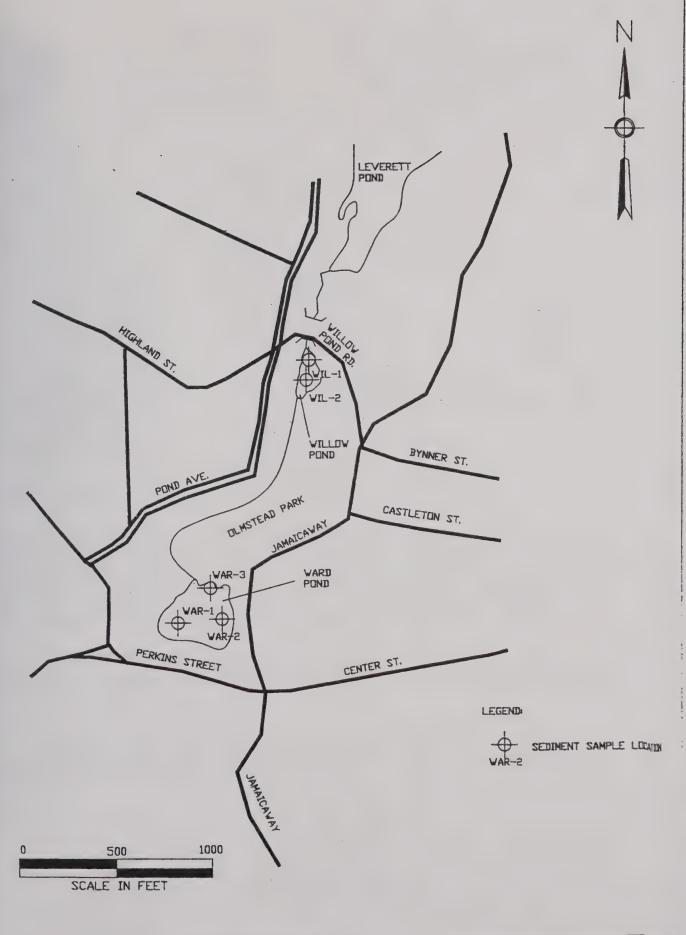
Analyses	VPH, EPH, RCRA 8 metals, PCBs, pesticides, TCLP, Reactivity, Conductance, and Sieve & Hydrometer	VPH, EPH, RCRA 8 metals, TCLP	VPH, EPH, RCRA 8 metals, PCBs, pesticides, TCLP, Reactivity, Conductance, and Sieve & Hydrometer	VPH, EPH, RCRA 8 metals, TCLP	VPH, EPH, RCRA 8 metals, PCBs, pesticides, TCLP, Reactivity, Conductance, and Sieve & Hydrometer	VPH, EPH, RCRA 8 metals, TCLP	VPH, EPH, RCRA 8 metals, PCBs, pesticides, TCLP, Reactivity, Conductance, and Sieve & Hydrometer	VPH, EPH, RCRA 8 metals, TCLP	VPH, EPH, RCRA 8 metals, PCBs, pesticides, TCLP, Reactivity, Conductance, and Sieve & Hydrometer	paint filter liquid test
Sampling Frequency (samples/yd³)	496		484		253		238		434	
Proposed Samples	15 (odd-numbered)	15 (even-numbered)	7 (odd-numbered)	7 (even-numbered)	39 (odd-numbered)	39 (even-numbered)	60 (odd-numbered)	57 (even-numbered)	198	20 composite samples
Existing Samples	. 6		9		∞		6		12	
Proposed Excavation Volume	19,340 yd³	() () () () () () () () () ()	9,670 yd		21,788 yd³		30,000 yd³		91,102 yd³	
Area of Study	Wards Pond		Willow Pond		Leverett Pond	,	Riverway		Back Bay Fens Area (includes Charlesgate Area)	

NOTE:

TCLP testing will be conducted on samples where any organic or inorganic contaminant exceeds the theoretical TCLP threshold.

Muddy River 2000 Sediment Testing

	Willow 00-1 (0 - 0.5')	Willow 00-1 (0.5-3.54')	Willow 00-2 (0 - 0.5')	Willow 00-2 (0.5 - 4.55')	Wards 00-1 (0 - 0.5')	Wards 00-1 (0.5 - 2.3')	Wards 00-2 (0 - 0.6')	Wards 00-2 (0.6 - 2.0')	Wards 00-3 (0 - 0.6')	Wards 00-3 (0.6 - 2.58')
INORGANICS (mg/kg)										
Arsenic	16.1		13.5	25.8	30.3	13.7	30.1	20.5	15.7	28.5
Cadmium	e. 00	2.29	1.55	2.43	1.15	0.3	1.35	0.29	2.31	0.74
Chromium	86.6	0.09	. 60.2	8.69	34.1	26.0	37.5	24.0	31.6	33.9
Copper	236	158	126	178	62.3	28	74.6	42.5	66.5	56.1
Lead	573	602	522	909	307	63	164	198	529	278
Nickel	40.4	34.9	26.8	36.0	23.3	14.7	26.3	13.0	32.7	19.4
Mercury	0.78	99.0	0.43	1.18	0.54	0.19	0.86	0.44	0.5	0.58
Zinc	483	359	304	426	225	63	395	133	310	299
TCLP Lead (mg/l)	0.1	==	. 0.1	0.5	0.1	n.d.	0.3	n.d.	0.2	0.1
DA He (van6en)										
Acensohibese	4000	1242	¥65	3608	27	70	210	31	77	S
Acenonhibulene	, C.	407	170	1684	177		1103	2 (2)	2	2 6
Anthropens	, Verical 1	1986	3151	0996	147	3	2433	1406	171	# 67°
Renzolalanihraren	4824	8704	17.1	23419	1358	144	7C35	3100	1 1	170
Denno(a) murene	4304	8226	1507	22363	1663	891	0000	2110	*11	0000
Benzo (h)Gusonihene	6019	2679	91.57	22362	1753	177	0000	2002	7000	19/8
Benzo (k) flurosophene	7575	7511	3816	20520	1570	178	4779	2700	1003	2000
Benzo (g.h. i)nerviene	4601	5871	3179	16325	1406	152	\$203	215	843	1876
Chrysene	7117	10151	\$030	28425	1798	503	7847	4204	1050	2480
Dibenz(a.h)anthracene	\$86	1365	752	3260	320	53	1194	478	184	429
Fluoranthene	13129	20652	9764	62154	2610	365	11909	7007	1404	3100
Fluorene	1559	1900	841	5395	689	, ii	553	345	989	721
Indeno(1,2,3-cd)pyrene	4822	6407	3366	18247	1462	143	5550	2283	857	1956
2-methylnapthalene	3417	1075	962	2878	74	n.d.	181	75	97	53
Napihalene	364	492	293	1068	92	n.d.	297	01	74	103
Perylene	1433	2166	1063	5235	472	4017	1539	1687	285	591
Phenanthrene	9360	14235	6802	44766	988	Ξ	3873	2869	689	1113
Pyrene	11652	18971	8482	56922	2715	363	12278	7256	1500	3230
Total PAHs (ug/kg)	83325	120390	58651	349391	18830	9919	79020	42181	11140	23907
TPH (mg/kg)	49590	53260	\$7010	33880	2868	3359	4626	4049	2410	2902
PCBs (ug/kg)	210	342	11	287	23	7	47	n.d.	\$	7
peetromae (metro)										
DDD	577	833	286	90	90	n.d.	22	9	11	v
DDF	269	96	124	122	79	pu	**************************************	, P	. 5	9 4
TOO	4	000	260	128	n.d.	p.d	n d	P s	3 ~	9 -
Gamma Chlordane	56	27	70	22	n.d.	n.d.	a.d.	100	p.d	-
Apha Chlordane	: ES	30	28	33	n.d.	n.d.	p.d	n d	-0	200
Endonulian I	71	25	12	24	n.d.	n.d	p.d	p.d	p.e	n d
Methoxychlor	26	22	35	32	B.G.	D.d.	n.d.	p u	pa	Pa
Heptachlor	bys.	n.d	4	n.d.	n.d.	n.d.	n.d.	n.d	p.u	n.d.
TOC (%)	15.1	10.3	13.3	11.2	7.8	21.6	8.7	20.2	10.7	6.4



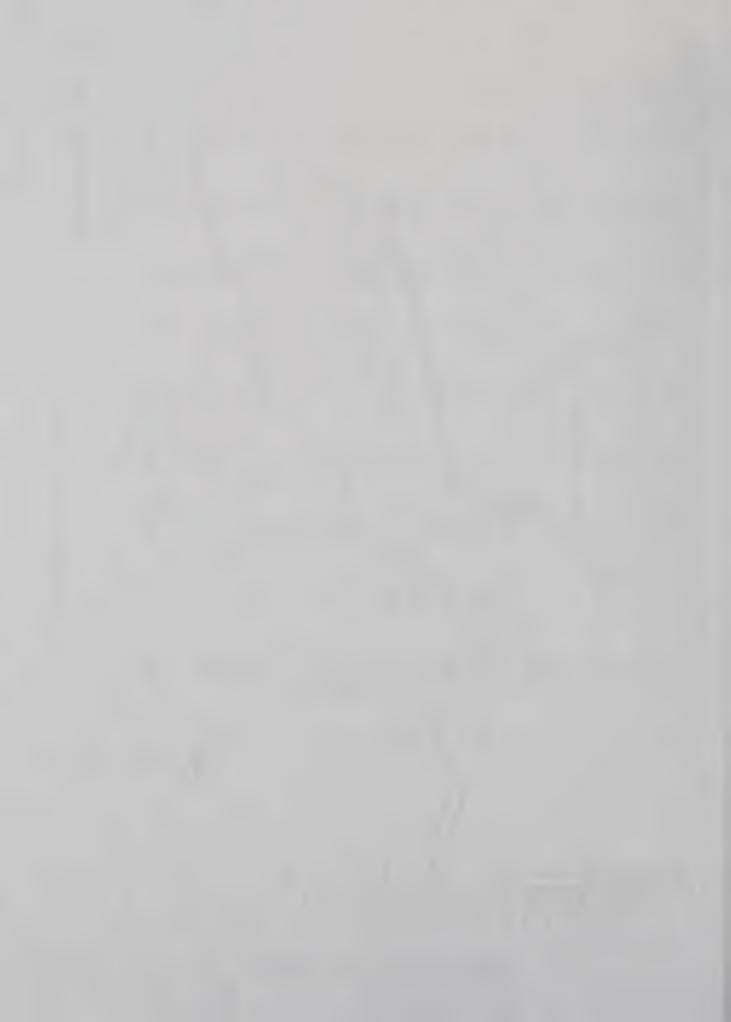
Harding Lawson Associates Engineering and Environmental Services 107 Aububon Road Building II, \$301 Wakefield, MA 01880 781-245-6606

SEDIMENT SAMPLE LOCATIONS

WARD POND AND WILLOW POND OLMSTEAD PARK BROOKLINE, MA

DATE

EKSE NO.





Governor

JANE SWIFT Lieutenant Governor

COMMONWEALTH OF MASSACHUSETTS EXECUTIVE OFFICE OF ENVIRONMENTAL AFFAIRS DEPARTMENT OF ENVIRONMENTAL PROTECTION

ONE WINTER STREET, BOSTON, MA 02108 617-292-5500

BOB DURAND Secretary

LAUREN A. LISS Commissioner

July 26, 2000

Muddy River Restoration

Plan (Revision)

Project, Sediment Quality Testing

Bruce Conklin Camp, Dresser & McKee, Inc. One Cambridge Place 50 Hampshire Street

Cambridge, MA 02139

Dear Mr. Conklin:

The Department of Environmental Protection (DEP) acknowledges receipt of your July 18,2000 correspondence which forwarded to DEP the results of sediment sampling from Ward's and Willow Ponds and a request to revise the original sediment and sampling plan as it relates to Ward's and Willow Ponds. In addition, your correspondence states that, in accordance with DEP's May 16, 2000 sediment sampling plan approval, the plan has been revised to include TCLP testing for any organic contaminant that exceeds the theoretical TCLP threshold.

Re:

Based on DEP's review of the Ward's and Willow Pond sampling results and the proposed TCLP testing procedure, DEP herewith approves the revised sampling plan delineated in the attached Table 1

Feel free to contact me at (617) 292-5698 if you have any questions or comments regarding this correspondence.

Very truly yours,

Steven G. Lipman, P.E.

Special Projects Coordinator

Table 1 Sampling Frequency and Proposed Parameters for Analysis

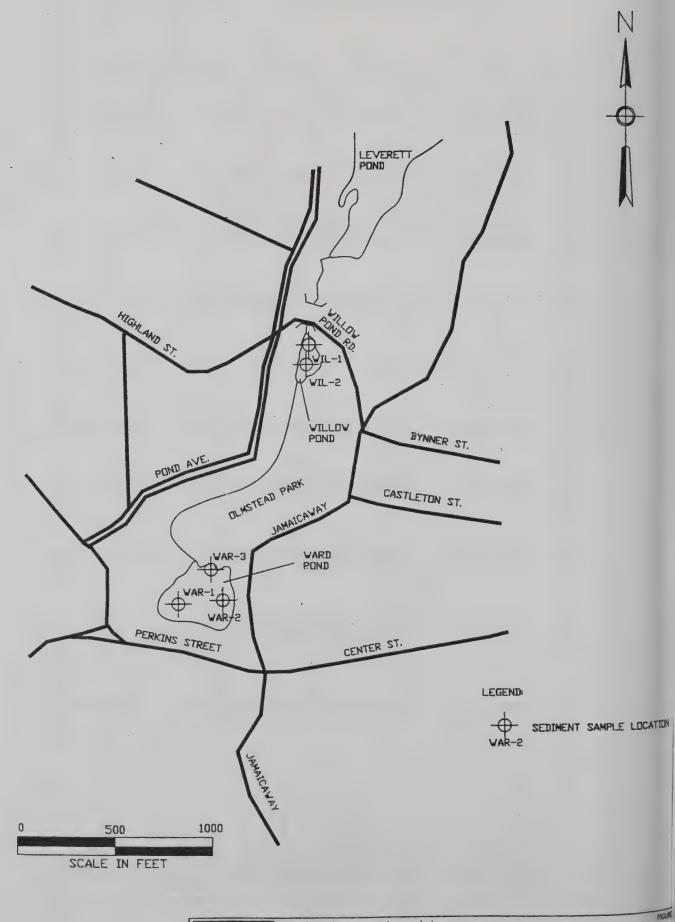
Muddy River Restoration Project

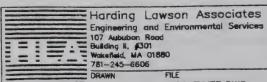
Area of Study	Proposed Excavation Volume	Existing Samples	Proposed Samples	Sampling Frequency	Analyses
				(samples/yd³)	
Wards Pond	19,340 yd ³	6	15 (odd-numbered)	496	VPH, EPH, RCRA 8 metals, PCBs, pesticides, TCLP, Reactivity, Conductance, and Sieve & Hydrometer
			15 (even-numbered)		VPH, EPH, RCRA 8 metals, TCLP
Willow Pond	9,670 yd³	9	7 (odd-numbered)	484	VPH, EPH, RCRA 8 metals, PCBs, pesticides, TCLP, Reactivity, Conductance, and Sieve & Hydrometer
			7 (even-numbered)		VPH, EPH, RCRA 8 metals, TCLP
Leverett Pond	21,788 yd³	∞	39 (odd-numbered)	253	VPH, EPH, RCRA 8 metals, PCBs, pesticides, TCLP, Reactivity, Conductance, and Sieve & Hydrometer
			39 (even-numbered)		VPH, EPH, RCRA 8 metals, TCLP
Riverway	30,000 yd³	6	60 (odd-numbered)	238	VPH, EPH, RCRA 8 metals, PCBs, pesticides, TCLP, Reactivity, Conductance, and Sieve & Hydrometer
			57 (even-numbered)		VPH, EPH, RCRA 8 metals. TCLP
Back Bay Fens Area (includes Charlesgate Area)	91,102 yd³	12	198	434	VPH, EPH, RCRA 8 metals, PCBs, pesticides, TCLP, Reactivity, Conductance, and Sieve & Hydrometer
			20 composite samples		paint filter liquid test

NOTE:

TCLP testing will be conducted on samples where any organic or inorganic contaminant exceeds the theoretical TCLP threshold.

	Willow 60-1 (0 - 0.5')	Willow 00-1 (0.5-3.54')	Willow 00-2 (0 - 0.5')	Willow 00-2 (0.5 - 4.55')	Wards 00-1 (0 - 0.5')	Wards 00-1 (0.5 - 2.3')	Wards 00-2 (0 - 0.6')	Wards 00-2 (0.6 - 2.0')	Wards 00-3 (0 - 0.6')	Wards 00-3 (0.6 - 2.58')
INORGANICS (mg/kg)										
Arsenic	191	24.5	13.5	25.8	30.3	13.7	30.1	20.5	15.7	28.5
Cadmium	ed (2.29	1.55	2.43	1.15	0.3	1.35	0.29	2.31	0.74
Chromium	90	0.09	60.2	8.69	34.1	26.0	37.5	24.0	31.6	33.9
Copper	236	158	126	178	62.3	28	74.6	42.5	66.5	56.1
	573	209	522	909	307	63	491	861	529	278
Nickel	40.4	34.9	26.8	36.0	23.3	14.7	26.3	13.0	32.7	19.4
Mercury Zinc	0.78	359	304	1.18	225	0.19 63	395	0.44	310	0.58
TCLP Lead (mg/l)	0.1	1.1	. 0.1	0.5	0.1	n.d.	0.3	n.d.	0.2	0.1
PASIS (ug/kg)										
Acenaphthene	894	1232	965	3608	43	n.d.	210	16	47	08
Acenaphthylene	353		170	1685	177	n.d.	1103	477	121	294
Anthracene	1836	3567	1315	0996	343	56	2433	1406	221	202
Benzo(a)anthracene	4825	8294	3731	23519	1358	144	5576	3109	714	1556
Benzo(a) pyrene	5395	8225	4053	23353	1653	168	0699	3118	200	1978
Benzo (b)fluroanthene	6129	7679	4436	22362	1753	177	. 6539	2803	1009	2162
Benzo(k)fluroanthene	5454	7511	3816	20529	1579	178	6345	2799	935	2203
Benzo (g,h,i)perylene	4601	5871	3179	16325	1406	152	5203	2154	843	1826
Chrysene	7117	10151	. \$030	28425	1798	203	7847	4204	1050	2480
Dibenz(a,h)anthracene	985	1365	752	3260	320	29	1194	478	184	429
Fluoranthene	13129	20652	9764	62154	2610	365	11909	7092	1595	3199
rinorae	1009	2000	3266	1072	88	n.a.	333	345	90	127
Internative January June	7175	1075	0,055	7878	7402	140	3330	2483	48	1956
Naphalene	300	492	293	1068	65	, T	297	2 5	24 46	201
Perviene	1433	2166	1063	\$235	472	4077	1539	1687	285	601
Phenanthrene	9360	14235	6802	44766	886	111	3873	2869	689	1113
Pyrene	11652	18971	8482	56922	27.15	363	12278	7256	1500	3230
Total PAHs (ug/kg)	83325	120390	58651	349391	18830	9919	79020	42181	11140	23907
TPH (mg/kg)	49590	53260	57010	33880	2868	3359	4626	4049	2410	2902
PCBs (ug/kg)	210	342	11	287	23	64	47	n.d.	9	7
(affair) Sumottsad										
DDD COLOR		831	286	816	96	20	22	¥	33	٧
700	260	96	124	122	3,5	20	: 2	o "	7 5	0 7
Too	4	90	560	128	20	9	n.d.	e d		0 %
Gamma Chlordane	56	27	56	22	n.d.	n.d.	n.d.	p.d	n d	100
Apha Chlordane	53	30	28	33	n.d.	n.d.	2.0	a d	p d	n d
Endonulfan I	17	25	12	24	n.d.	n.d.	n.d.	p.a	n.d	n d
Methoxychlor	26	27	38	32	n.d.	n.d.	n.d.	n.d	n.d	n.d.
Heptachlor	152	p.u	4	n.d.	n.d.	n.d.	n.d.	p.a	p.u	n.d.
TOC (%)	15.1	10.3	13.3	11.2	7.80	21.6	2 %	202	10.7	73
							i	1		ř
	***	63								





SEDIMENT SAMPLE LOCATIONS
WARD POND AND WILLOW POND
OLMSTEAD PARK
BROOKLINE, MA

DATE 5/00

ATTACHMENT F-2 SEDIMENT BORING LOGS



BOREHOLE cg-SED-1	Boston Parks and Recreation Department Project Name: Muddy River Location: Charles Gate Project Number: 1517-28449-SR.SEDSAMP.FIELD	Surface Elevation (ft.):	It Spoon Total Depth (ft.): 6	Depth of Water (ft.): 4.5	Drilling Date: Start: 7/25/00 End: 7/25/00 Abandonment Method: Collapsed	Field Screening Instrument: OVM w/ 10.2 PID	Logged By: K. Dillaway	Blows per 6 Inches 6 Inches 6 Crephic Log Straium Straium		2 4: Top 2*: Wet, loose, grey, fine SAND, trace fine gravel. Bottom 2*: Wet, loose, grey, fine SAND, trace organics.		Bottom of Exploration at 6 feet BGS.		
CAMP DRESSER & MCKEE CDM SO Hampshire Street Cambridge, MA 02139	Client: Boston Parks and Recreati	Geo-Tek	DTC/3* Spilt Spoon		2/00 End			(ft.) DEPLY. (ft.) The horizontal instrument Pleid Instrument Pleid Instrument Pleiding	0.0	0.0	5 0.2		<u>0</u>	<u>π</u>

BOREHOLE LOG cg-SeD-2

CAMP DRESSER & MCKEE

Project Number: 1517-28449-SR.SEDSAMP.FIELD

Surface Elevation (ft.): Total Depth (ft.): 10

Project Name: Muddy River

Client: Boston Parks and Recreation Department

50 Hampshire Street Cambridge, MA 02139 Project Location: Charles Gate Drilling Contractor: Geo-Tek Field Screening Instrument: OVM w/ 10.2 PID

Abandonment Method: Collapsed

Drilling Date: Start: 7/25/00 End: 7/25/00

Borehole Coordinates:

Drilling Method/Rig: DTC/3* Split Spoon

Drillers: Glen & Tom

Depth of Water (ft.): 4.0

Logged By: K. Diliaway	Description	0-2': Wet, loose, brownish-grey, coarse to fine SAND, some organics, trace gravel.	2-4" Wet, loose, gray, medium to fine SAND, trace organics. Large rock stuck in tip.	4-8'; Wat, loose, grey, coarse to fine SAND, some gravel, trace debris.	6-6'; As above.	8-10: Top 9*: Wet, loase, grey, coarse to fine SAND, some gravel. Bottom 3*: Wet, loose, grey, medium to fine SAND, some allt, slight organic odor (native).	Bottom of Exploration at 10 feet BGS.	REMARKS	Revisioned by M. M. M. M. J. J.
	tert2 ngiaeQ								HAG TYPES. Augelical Sample Augelical Sample 1.5° Flock Core Geographa Mydro Punch Soil Spanni Soil Spanni Soil Sample Made Sample Abree Ground
pirk B	Grap Lo							SNS	MA TYPES: Auger/Grab Sarr California Sarrol 2.1° Rock Core 2.1° Rock Core 4.1° Rock Core Bytor Punch Spill Spoon Shelby Tube Waah Sample
	Blows onl 6	4004	× - 0	1 m	00 F 0	ro 4 61 +-		DITAIN.	SAMPLING TYPES: AB Auge/Gab S C3 Callionnal 88 C3 Callionnal 88 C3 Callionnal 88 C4 Callionnal 88 C5 C
i 6un	izni bleiii bsefi iqq)	0.2	0.2	0.2	A A	0.2		ABBRE	SAM SAM SAM SAM SAM SAM SAM SAM SAM SAM
Elex	Depth (ft.)	0	1 -1	es .			2	IO NOI	
ea)	ms2 Record honl)	24/5	24/8	24/20	24/18	24/12		EXPLANATION OF ABBREVIATIONS	Auger Auger Iotary y culeston
ת פ	Number							ă	PRILING METHODS: 184A - Holiov Stem Auget 185A - Soid Stem 18
2 e _i d	me2 TyT	SS	SS	SS	SS	SS			DORULLIN HSA SSA HAA HAA DTR CCT CCT

Reviewed by: J. M. Muller Date:

REMARKS

EXPLANATION OF ABBREVIATIONS

CAMP DRESSER & MCKEE CDN EDV So Hampshire Street Cambridge, MA 02139	Sheet 1 of 1 BOREHOLE LOG CG-SED-3
Client: Boston Parks and Recreation Department Project Location: Charles Gate	Project Name: Muddy River Project Number: 1517-28449-SR.SEDSAMP.FIELD
Drilling Contractor: Geo-Tek	Surface Elevation (ft.):
Drilling Method/Rig: DTC/3* Split Spoon	Total Depth (ft.): 10
Drillers: Glen & Tom	Depth of Water (ft.): 6.0
Drilling Date: Start: 7/27/00 End: 7/27/00	Abandonment Method: Collapsed
Borehole Coordinates:	Field Screening Instrument: OVM w/ 10.2 PID
lui z	Logged By: K. Dillaway

B O CG-SI	Client: Boston Parks and Recreation Department Project Name: Muddy River Project Location: Charles Gate Project Number: 1517-28449-SR.SEDSAMP.FIELD	-Tek Surface Elevation (ft.):	DTC/3" Split Spoon Total Depth (ft.): 10	Depth of Water (ft.): 6.0	7/27/00 End: 7/27/00 Abandonment Method: Collapsed	Field Screening Instrument: OVM w/ 10.2 PID	(#) Designation Teld the control of	0 0-21: Weet, loose, grey, coarse to fine SAND, some gravel, little organics, slight organic odor.	NA 1 0000 State of the SAND, some large gravel, little organics, slight organics, slight organic odor, trace brick.	5 NA 2 2 4-0: As above.	6-8: Wel, lose, grey, coarse to fine SAND, trace gravel, trace organics.	NA 8 B-10": Welt, medium dense, grey, medium to fine SAND, coarse sand layer at top (native).	Bottom of Exploration at 10 feet BGS.	- 191	EXPLANATION OF ABBREVIATIONS	A SAMPLING TYPES: A SAMPLING TYPES: A SAMPLING TYPES: A SAMPLING SAMPLING B ST TYPES CONTROL SAMPLING B SAMPLING CONTROL SAMPLING CONTROL SAMPLING B SAMPLING CONTROL SAMPL
COMMONIA Street Cambridge, MA 02139 Innt - Broton Parks a	Client: Boston Parks and Recre Project Location: Charles Gate		Drilling Method/Rig: D7		Drilling Date: Start: 7//	Borenoie Coordinates:	Sample Recovery (Inches)	24/3	24/4	24/4	24/8	24/20	1. 1. 1.		TANAT	and described an

CDDM 50 Hampshire Street Cambridge, MA 02139	Client: Boston Parks and Recreation Department Project Location: Charles Gate	Drilling Contractor: Geo-Tek	Drilling Method/Rig: DTC/3" Split Spoon	Drillers: Glen & Tom	Drilling Date: Start: 7/28/00 End: 7/28/00	Borehole Coordinates:		Sample Recovery (Inches) (10)	24/4	24/8	24/4 5	24/4	24/18	2	 <u>-</u>	1.1.1	EXPLANATION OF ABBREVIATIONS	HETHODS: HETHOD
	reation Departn te		Split Spoon		End: 7/28/00				1.4	1.0 2 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4	4 10 4 0	4 - 4 ·	NA 10 5 - 24 2 24 24 24 24 24 24 24 24 24 24 24 2				ABBREVIATION	SAMPLING TYPES: A8 - Augericas Sample C9 - Calmonia Bample BX - 17 Prod. Core NX - 2.1 Prod. Core NY - 2.1 Prod. Core HP - Hydro Punch S18 - Spill Spoun S17 - Shally Tribe Will - Wash Sample
	nent							Log Log mustus Stratum Gesignation			·						- Ω	TYPES: perGrab Sample frontal Sample frontal Sample frock Core probe fro Punch it Spoon the Punch it Sample en Sample
BOREHOLE LOG	Project Name: Muddy River Project Number: 1517-28449-SR.SEDSAMP.FIELD	Surface Elevation (ft.):	Total Depth (ft.): 10	Depth of Water (ft.): 6.5	Abandonment Method: Collapsed	Field Screening Instrument: OVM w/ 10.2 PID	Logged By: K. Dillaway	Material Description	0-2: Wet, very loose, blackgrey, coarse to fine SAND, little silt and organica, strong petroleum odor.	2-4". Top 4": Wet, very loose, black, coarse to fine SAND. Bottom 4": Wet, loose, black/grey, coarse to fine SAND, some organics, trace fine gravel, slight odor.	4-8" Wet, loose, blackgrey, coarse to fine SAND, some organics, trace fine gravel, slight odor.	6-8: Wet, loose, grey, coarse to fine SAND, trace fine gravel, slight petroleum odor.	8-10: Top 12": Wel, medium dense, grey, medium to fine SAND, sight edor. Bottom 6: Welt, dense, grey, coarse to fine SAND, some gravel and shell fragments (native).	Bottom of Exploration at 10 feet BGS.			REMARKS	

LOG G		49-SR.SEDSAMP.FIELD				apsed	OVM w/ 10.2 PID		Material	se to fine SAND, some gravel. SAND and SILT, trace clay and	se to fine SAND, some gravel.	AND and SILT, trace shell			
BOREHOLE LOG	C-030-50	Project Name: Muddy River Project Number: 1517-28449-SR.SEDSAMP.FIELD	Surface Elevation (ft.):	Total Depth (ft.): 4	Depth of Water (ft.): 5.0	Abandonment Method: Collapsed	Field Screening Instrument: OVM w/ 10.2 PID	Logged By: K. Dillaway	Material Description	0-2: Top 3: Wet, loose, black coarse to fine SAND, some gravel. Bottom 9" Wet, very loose, grey, fine SAND and SILT, trace clay and shell fragments.	2-4": Top 12": Wet, loose, grey, coarse to fine SAND, some gravel.	Bottom 12": Wet, loose, grey, fine SAND and SILT, trace shell fragments, strong organic odor (native).	Bottom of Exploration at 4 feet BGS.		
ш (artment				00			Graphic Log Stratum Designation				- 44		
		Client: Boston Parks and Recreation Department Project Location: Charles Gate		Drilling Method/Rig: DTC/3" Split Spoon		Drilling Date: Start: 7/28/00 End: 7/28/00			Field Instrument Reading (ppm) Blows per 8 Inches	0.1	-	NA NA			
CDM		and Rec	Geo-Tek	TC/3"		//28/00			Eler. Depth (ft.)	0	-	1 1	ro .	9	55
5	Street A 02139	Parks	ctor: G	J'Rig:	& Tom	Start: 7	dinates		Sample Recovery (Inches)	24/12		24/24			
Ö	50 Hampshire Street Cambridge, MA 02139	Client: Boston Parks and Recre Project Location: Charles Gate	Drilling Contractor:	ing Method	Drillers: Glen & Tom	ing Date:	Borehole Coordinates:	ш	Sample						
-	රිගී	Cile	Dri	Dri	Drill	Drill	Bon	z	Sample	SS		SS			

LOG

BOREHOLE CG-SED-6

CAMP DRESSER & MCKEE

Project Number: 1517-28449-SR.SEDSAMP.FIELD

Surface Elevation (ft.): Total Depth (ft.): 10

Depth of Water (ft.): 8.5

Project Name: Muddy River

Client: Boston Parks and Recreation Department

Cambridge, MA 02139

Project Location: Charles Gate
Drilling Contractor: Geo-Tek

Drilling Method/Rig: DTC/3" Split Spoon

Drillers: Glen & Tom

Bore	Borehole Coordinates:	**					Field Screening Instrument: OVM w/ 10.2 PID
z	m						Logged By: K. Dillaway
eqyT	N Sample Sample Recovery (Inches)	Elex, Depth (ft.)	frield Instrument PribaeA (mqq)	Blows per 6 Inches	Graphic Log	Stratum Designation	Material Description
SS	24/8	0	2.8	Push			0-2: Top 2: Wet, very loose, black, coarse to fine SAND, some gravel, slight petroleum odor. Bottom 6' wey, very loose, black, coarse to fine SAND, trace gravel and brick framments.
SS	24/10		0.1	@ 10 m m			2-4: Wet losse, black, coarse to line SAND, trace gravel and brick fragments.
SS	24/8	rs.	A N	m m			4-6: Top 2: Wet, loose, black, coarse to fine SAND, trace gravel. Bottom 6": Wet, loose, black, fine SAND and SILT.
SS	24/8	1 1	NA	0000			6-9: Wet, loose, blackgrey, medium to fine SAND, trace brick fragments.
SS	24/18	1 1	0.1	N N			8-10: Wet, very loose, grey, medium to fine SAND and SILT.
		9					Bottom of Exploration at 10 feet BGS.
		15					
-	EXPLANATION OF ABBREVIATIONS	TION OF	ABBRE	MATIO	SNS		REMARKS
DRHLING SSA - PAR - I NA AR - I NA A	G METHODS: Holow Stem Auger Solid Stem Auger Air Roll and Auger Jube Roll and Number Foun Rollany Much Rollany Reverse Circulation Cashe Tool		A A O B A B A B A B A B A B A B A B A B	SAMPLING TYPES. AS A supplicate Sample CS California Sample DX 12 Flock Cone NX 2.1 Flock Cone GP Geoprobe HP Hydro Punch SS Spall Spoon ST Shelly Tube WS - Wath Flower WS - Wath Flower WS - Wath Flower WS - Wath Flower	Auger/Greb Sa Auger/Greb Sann California Sann 1.5" Rock Core 2.1" Rock Core 3.00 Punch Spill Spoon Shelby Tube	ampie npier e	

Reviewed by: J. Mynulles Date: 12/11/60

REMARKS

EXPLANATION OF ABBREVIATIONS

REHOLE LOG	Project Name: Muddy River Project Number: 1517-2849-SR.SEDSAMP.FIELD	Surface Elevation (ft.):	Depth of Water (ft.): 1.3	Abandonment Method: Collapsed	Field Screening instrument: None	Logged By: J. Zametske	Material Description	0-2: No recovery.	2-4: Wet, black to gray, medium to fine SAND and CLAY, some organics. Petroleum odor and sheen.	Bottom of Exploration at 4 feet BQS.					REMARKS	0-2 ft. had no recovery due to the auger tip failthy to capture the fluid, low-density organic material which resides at a depth of 0-2 ft.
BORE BBF-SED-01	Proj	Surf	Depl	Abai	Field	Logi	Stratum Designation	0-2: No	2-4": Well	Bottom						
	ment			00			Graphic								SNS	SAMPLING TYPES: AS A PARPENDA SIMPLE CS Californs Sample RX 15 Flock Core NX 2.11 Flock Core OP Geograph AP Hypor Punch SS SPRISON SS SPRISON WES WANS Sample
	Depart			10/18/			Blows per 6 Inches								VIATIO	SAMPLING T A& Aug Call BX 1.6" NX 2.1" NX 2.1" OP Geog HP HP HP HP Shd
,	reation	l'aou		End:			frieminism bleii gnibseA (mqq)								ABBRE	A ST
	nd Rec	MC and A	À	3/18/00			Depth (ft.)	0	1 1	ro	1	9	1	2	NO NO	
Street A 02139	Parks a	ctor: Cl	red, And	Start: 1(dinates:		Sample Recovery (senan)	24/0	24/8				11	I. I . I I	EXPLANATION OF ABBREVIATIONS	in Auger m Auger m Auger ger ger y e Hotery tery tery circletion of
CDM 50 Hampshire Street Cembridge, MA 02139	Client: Boston Parks and Recreation Department Project Location: Back Bay Fens	Drilling Contractor: CDM	Drillers: Jay, Fred, Andy	Drilling Date: Start: 10/18/00 End: 10/18/00	Borehole Coordinates:	w	Sample								EX	40 METHODS: Hollow Stern Auger Sold Stern Auger Harrd Auger Air Potaty Doan Tube Rotary Mod Rotary Mod Rotary Mod Rotary Med Rotary Med Rotary Gabe Tool
800	Cilen	Drilli	Drille	Drilli	Bore	z	Sample	¥	1							DARLIN HSA BSSA BSSA BSSA BSSA BSSA BSSA BSSA

BOREHO BBF-SED-02	ecreation Department Project Name: Muddy River Field Project Number: 1517-28449-SR.SEDSAMP.FIELD	Geo-Tek Surface Elevation (ft.): 10 DTC/3" Solit Spoon Total Depth (ft.): 10		End: 7/19/00	Fletd Screening Instrument: OVM w/ 10.2 PID Logged By: K. Dillaway	Fleid Instrument (Appn) (Appn) Blows per E Instrument (Appn) Colleged (Appn) Colleged (Appn) Colleged (Appn) Colleged (Appn) Colleged (Appn)	0.0 2 (leaves, sircks), trace fine gravel.	2.4" Wet, dense, black to grey, coarse to fine SAND, little organics, 0.0 5	0.1 4 4 4 5 4.6 Wet, loose, grey, coarse to fine, SAND	6-8' Wet, medium danse, grey, coarse spoon tip. Heavy organic odor (native).	6 8-10: Wel, medium dense, grey, coarse to fine SAND, little organic silt (peat), strong organic odor (native).	Bottom of Exploration at 10 feet BGS		EXPLANATION OF ABBREVIATIONS	AAAMPUNG TYPES: AS - Augestine Surpsis BX - IF Floor Comparing BX - IF Floor Comparing BX - IF Floor Comparing BY - IF Floor C
GDM 50 Hampshire Street Cambridge, MA 02139	Client: Boston Parks and Recreation Department Project Location: Back Bay Fens	Drilling Contractor: Geo-Tek Drilling Method/Rig: DTC/3":	Drillers: Bob & Matt	Drilling Date: Start: 7/19/00	Borehole Coordinates: N E	Sample Type Number Geovery Number Geoph (in)	SS 24/8 -	SS 24/4	SS 24/2 5	SS 24/7	SS 24/8	0	<u>*-</u>	EXPLANATION O	DRILLING METHODS: A. Selonge allow allowed to the A. Selonge allow allowed to the A. Selonge allowed to the A. A. Selonge allowed to the Selo

CAMP DRESSER & MCKEE	Sheet 1 of 1	-
CDM	BOREHOLE LOG	
50 Hampshire Street Cambridge, MA 02139	BBF-SED-03	
Client: Boston Parks and Recreation Department	Project Name: Muddy River	
Project Location: Back Bay Fens	Project Number: 1517-28449-SR.SEDSAMP, FIFE D	

BOREHOLE LOG BBF-SED-03	Project Name: Muddy River Project Number: 1517-28449-SR.SEDSAMP.FIELD	Surface Elevation (ft.):	Total Depth (ft.): 4	Depth of Water (ft.): 0.1	Abandonment Method: Collapsed	Fleid Screening Instrument: OVM w/ 10.2 PID	Logged By: K. Dillaway	Material Description	0.2": Wet, loose, grey, coarse to fine SAND, trace organics (decomposing leaves, sticks, etc).	2-4: Wet, locse, grey, coarse to fine SAND, some organics (5" of pure peet, brown), little sift. Heavy organic odor (native).	Bottom of Exploration at 4 feet BGS.				REMARKS	Backwardtu
	tion Department		t Spoon		d: 7/19/00			Peading (ppm) Blows per Blows per Caraphic Log Log Stratum Stratum Designation		1 m m m u					BREVIATIONS	SAMPLING TYPES: As Auguston as Sample CS California Sample RX 12 FOOL Code RX
CAMP DRESSER & MCKEE CDM S0 Hampshire Street Cambridge, MA 02139	Client: Boston Parks and Recreation Department Project Location: Back Bay Fens	tor: Geo-Tek	Drilling Method/Rig: DTC/3" Split Spoon	Mart	Drilling Date: Start: 7/19/00 End: 7/19/00	linetes:		Semble Recovery (inches) (2) (2) (3) (4) (4) (5) (5) (5) (6)	24/2 - 0.0	24/18 - 0.0	ın	 01	1 1 1	\rho \	 EXPLANATION OF ABBREVIATIONS	eger Per Mon
CAMP DRESSER CAMP DRESSER CAMP DRESSER SO Hampshire Street Cambridge, MA 02139	Client: Boston Project Location	Drilling Contractor: Geo-Tek	Drilling Method	Drillers: Bob & Matt	Drilling Date: S	Ē	w z	ekqmes eqv1	SS	SS					EXPL	DRILLING METHODS: HSA - Holding Stan Auger HA - Holding Holdin

BOREHOLE LOG 88F-SED-04	Project Name: Muddy River Project Number: 1517-28449-SR.SEDSAMP.FIELD	Surface Elevation (ft.):	Total Depth (ft.): 8	Depth of Water (ft.): 0.5	Abandonment Method: Collapsed	Fleld Screening Instrument: OVM w/ 10.2 PID	Logged By: J J Callahan	Material Description	0-2". Welt, loose, black, coarse to fine SAND, trace fine gravel and organics, decomposed leaves, sticke, etc. (no odor).	2-4°: Wet, medlum dense, black to grey, coarse to fine SAND and organic SILT. (Heavy organic odor), iffile organic debris, decomposed leaves, sticks, etc.	4-6: Wat, loose, dark grey, coarse to fine SAND and organic SILT (2" layer at tip of spoon), moderate organic odor.	6-8': Wet, medium dense, grey and brown, organic, SILT, little medium to fine sand. Strong organic (peat) odor (native).	Bottom of Exploration at 6 feet BGS.		REMARKS	The state of the s
8 9								Straton noterigiseO								empte poper e
	rtment				_			Graphic Log							SNS	NG TYPES: AugerGrab Sample Calcinnia Bample 1.5° Rock Core Geoprobe Hydro Punch Shells Spoon Shells Spoon Shells Spoon Shells Spoon Above Ground Above Ground
	Depar		noc		/20/00			Blows per 6 Inches	- 00	n m m m m	0004	N 10 10 10			VIATIO	
Ä	reation		Split Spo		End: 7			Field Instrument Reading (mqq)	0.0	0:0	0:0	0.0			ABBRE	SAMPLI AS BX NX NX NX ST WWS OTHER
MCK MCK	rks and Recreat Back Bay Fens	80-Tek	TC/3"		20/00			Elex, Depth (ft.)	0	- 	2	 	0,	<u>ro</u>	ON OF	
Street V 02139	Parks 8	ctor: G	VRIg: D	Matt	Start: 7	dinates:		Sample Recovery (Inches)	24/3	24/18	24/5	24/24			EXPLANATION OF ABBREVIATIONS	3: Auger Auger Auger Rotary ry roulation
COMPUTED SERVICE OF THE STREET	Client: Boston Parks and Recreation Department Project Location: Back Bay Fens	Drilling Contractor: Geo-Tek	Drilling Method/Rig: DTC/3" Split Spoon	Drillers: Bob & Matt	Drilling Date: Start: 7/20/00 End: 7/20/00	Borehole Coordinates:	ш	Sample							EXP	a METHOD Bolid Stem Solid Stem Hand Auge Ar Rotany Dual Tube & Foem Rotan Mud Rotany Reverse Cil Cable Tool Jeiting During
88	Cilei	Drill	Drill	D'-	Drill	Bore	z	Sample	SS	SS	SS	SS				DARILLING HSA

Sheet 1 of 1	FIELD					_		
BOREHOLE LOG BBF-SED-05	Project Name: Muddy River Project Number: 1517-28449-SR.SEDSAMP.FIELD	Surface Elevation (ft.):	Total Depth (ft.): 10	Depth of Water (ft.): 0.5	Abandonment Method: Collapsed	Fletd Screening Instrument: OVM w/ 10.2 PID	Logged By: J J Callahan	Material Description
	_							mutett2 notengiee0
	tmen							Graphic god
	Depa		noo		7/21/00			Blows per 6 Inches
(EE	creation Fens		Split Sp		End: 7			Insmuntant blef- gaibseA (mqq)
& Mck	and Resk R	ieo-Tek	TC/3		//21/00			Elex. Depth (ft.)
Street A 02139	Parks on: Bac	ctor: G	d/Rig: [& Matt	Start: 7	dinates		Sample Recovery (Inches)
CAMP DRESSER & MCKEE CDM S0 Hampshire Street Cambridge, MA 02139	Client: Boston Parks and Recreation Department Project Location: Back Bay Fens	Drilling Contractor: Geo-Tek	Drilling Method/Rig: DTC/3* Split Spoon	Drillers: Bob & Matt	Drilling Date: Start: 7/21/00 End: 7/21/00	Borehole Coordinates:	w	Sample
0 0 00	Clie	Pre	Dri	Drill	Du	Bon	z	Sample

0-2: Wet loose, black, coarse to fine SAND, some fine gravel, little silt (no odors), trace organics.

0.0

24/10

SS

Sheet 1 of 1

LOG

BOREHOLE

CAMP DRESSER & MCKEE

Project Name: Muddy River Project Number: 1517-28449-SR: SEDSAMP FIELD	Surface Elevation (ft.):	Total Depth (ft.): 8	Depth of Water (ft.): 0.6	Abandonment Method: Collapsed	Field Screening Instrument: OVM w/ 10.2 PID	Logged By: JJ Callahan	Material Description	0-2". Well, loose, black to grey, coarse to fine SAND, some organics, decomposed leaves, sticks, trace gravel. Stight organic odor.	2-4: Wet, medium dense, grey, medium to fine SAND, little black (organica), tace fine gravel, 3.5-4" diameter rock prortuding from tip of spoon. Moderate organic odor.	4-6: Wel, medium dense, grey to brown, coarse to fine SAND and fine GRAVEL, trace brown silt.	6-8: Top 9*: Wet, madlum dense, grey to brown, medium to fine SAND. Middle 3': Brown PEAT. Bottom 6': 'Wet, 'very dense, grey, fine SAND and SILT (native).	Bottom of Exploration at 8 feet BGS		REMARKS	age age
rtment				0			Graphic Log Stratum							SNO	SAMPLING TYPES: All Authorities Sample CS California Sample CS California Sample NX 1.5 flock Cove NX 2.1 Flock Cove OF GROUPS FF Hydro Plunch SS Spin Spoun SS SPIN
Depa 1		nood		7/25/00			Blows per 6 Inches	10 A 10 A	2000	-00:	12 72 23			EVIATI	SAMPLING AS AU CG CG CG BX - 1.6 BX - 1.6 GP - GG GP - GG ST - Sh WS - NY WS -
reation		DTC/3" Split Spoon		7/25/00 End: 7/25/00			field instrument Plesding (mqq)	0.2	0.2	0.1	0.0			ABBR	#40 # £0 £ # # # # # # # # # # # # # # # #
ind Rec	eo-Tek	TC/3"		725/00			Depth (ft.)	0		NO.		9	2	O NOL	
Boston Parks and Recreation Department Location: Back Bay Fens	ctor: G		Matt		dinates:		Sample Recovery (inches)	24/8	24/4	24/8	24/18			EXPLANATION OF ABBREVIATIONS	400S: Stem Auger A
	Drilling Contractor: Geo-Tek	Drilling Method/Rig:	Drillers: Bob & Matt	Drilling Date: Start:	Borehole Coordinates:	ш	Sample							EX	DRILLING METHODS: HISA Holoro Stem Auger HISA Holoro Stem Auger HISA Holoro Stem Auger HISA Holoro HIS
Client: Project	Drill	Drill	Drill	Drill	Bore	z	Sample	SS	SS	SS	SS				DRILLIN HSA SSSA HAA HAA HAA FR FR CT

6-8": Wet, medium dense, gray, coarse to fine SAND, some fine gravel (native).

4-6: Wet, dense, black, coarse to fine SAND, trace fine gravel and trace stit (no odors).

0.0

24/11

SS

0.1

24/24

88

0.0

24/18

SS

10

15

0.5

24/14

SS

2-4": Wet, medium dense, black, coarse to fine SAND, trace fine gravel, organics, decomposed leaves, sticks, sllt, and glass.

8-10": Top 8 ": Wet, medium dense, grey, coarse to fine SAND some silt with organics.

Bottom 10": Wet, medium dense, grey, coarse to fine SAND (native).

Bottom of Exploration at 10 feet BGS.

Reviewed by: J. M. Cruelle Date: 12/11/00

REMARKS

EXPLANATION OF ABBREVIATIONS

NDDY_MYER_BL MRNBBFGF1 COM_MA.GDT 12/13/00

CAMP DRESSER & MCKEE CDDM 50 Hampshire Street Cambridge, MA 02139	BOREHOLE LOG BBF-SED-07
Cilent: Boston Parks and Recreation Department	Project Name: Muddy River
Project Location: Back Bay Fens	Project Number: 1517-28449-SR.SEDSAMP.FIELD

BOREHOLE LOG BBF-SED-07	Project Name: Muddy River Project Number: 1517-2849-SR.SEDSAMP.FIELD	Surface Elevation (ft.):	Total Depth (ft.): 8	Depth of Water (ft.): 2.5	Abandonment Method: Collapsed	Field Screening instrument: OVM w/ 10.2 PID	Logged By: K. Dillaway	Material Description	0-2: Wet, very loose, coarse to fine SAND and organic SILT. Strong petroleum odor.	2-4": Wet, very loose, black, fine SAND and SILT, trace organics.	4-8: Top 20": As above. Bottom 4": Peat in tip.	6-8: Wet, very loose, grey, fine SAND and SILT, trace pest (native). Strong organic oddr.	End of Boring at 8 feet BGS.		REMARKS	
	Client: Boston Parks and Recreation Department Project Location: Back Bay Fens		plit Spoon		End: 9/6/00			Field Inclument (pmg) (pmg) (pmg) Blows per 6 Inches Craphic Log	WOR	WOH	NA WOR	0.0			EXPLANATION OF ABBREVIATIONS	SAMPLING TYPES: A8 - Aughridane Sample C8 - Callornia Sample RX - 17 Rect Core NX - 2.1 Rect Core NY - 2.1 Rect Core NP - Capping S - Sample S - Sample NS - Sample NS - Wash S - Wash S - Wash NS - Wash S - Wash NS - Wash S - Wash NS - Wash S - Wash A03 - Above Ground
Columbia Street	Client: Boston Parks and Recreat	ctor: Geo-Tek	Drilling Method/Rig: DTC/3" Split Spoon	& Matt	Drilling Date: Start: 9/6/00 E	dinates:		elmeS Necovery (inches)	24/8	24/18	24/24 - 5	24/14 -	101	100	 PLANATION OF	Auger luger otary russion
CDDIM 50 Hampshire Street Cambridge, MA 02139	lent: Bostor oject Locati	Drilling Contractor:	Illing Metho	Drillers: Glen & Matt	Illing Date:	Borehole Coordinates:	ш	Sample							T X	DRILLING METHODS: 185A Holdow Stem August 185A Holdow Stem August 185A Solid Stem August 18
	2 4	à	Ď	٥	ŏ	B	z	Sample 9qvT	SS	SS	SS	SS				DPILL HSA SSA SSA SSA HSA SSA SSA SSA SSA SSA

BOREHOLE LOG BBF-SED-08	Project Name: Muddy River Project Number: 1517-2849-SR.SEDSAMP.FIELD	Surface Elevation (ft.):	Total Depth (ft.): 6	Depth of Water (ft.): 2.5	Abandonment Method: Collapsed	Field Screening Instrument: OVM w/ 10.2 PID	Logged By: K. Dillaway	Material Description	0-2: Top 3::Wet, loose, black, ORGANIC MATTER, some grass and leaves. Bottom 3: Wet, loose, black coarse to fine SAND and SILT.	2-4: Wet, loose, gray, coarse to fine SAND and GRAVEL, tittle siit.	4-6: Wet, very loose, gray, coarse to fine SAND and GRAVEL, little stilt, (native).	End of Boring at 6 feet BGS.						d on a sealed	HEMAHKS	Reviewed by: J. Mymuller Date: 12/11/100
ш в	ment							Graphic Log Stratum Designation										-	SAMEUNG TYPES: SAMEUNG TYPES: SAMEUNG TYPES: SAMEUNG TYPES: SAMEUNG TYPES: SAMEUNG THE SAME SAME SAME SAME SAME SAME TABLE THE SAME TABLE THE SAME TABLE TAB	Above Ground Surface
	Depart		noo		00/9			Blows per 6 Inches	WOR	m ≠ v m	N E							T A	VPLING T Californ Cal	S - Abov
33	reation		Split Sp		End: 9/			field Instrument Residing (mqq)	0.0	0.0	A N							000	AS A S A S A S A S A S A S A S A S A S	PAG
& McK	ind Rec	Bo-Tek	TC/3°		00/9/			Elev. Depth (ft.)	0		ļ _r o		9	1	1	15		- John State of State		
SSER Street	Parks s	ctor: G	VRIg: D	& Matt	Start: 9,	dinates:		(luches)	24/8	24/5	24/12							SHOTT WITH THE STATE OF THE STA	DS: sem Auger m Auger per per per per per per per per per p	Casing
CAMP DRESSER & MCKEE CDM SO Hampshire Street Cambridge, MA 02139	Client: Boston Parks and Recreation Department Project Location: Back Bay Fens	Drilling Contractor: Geo-Tek	Drilling Method/Rig: DTC/3* Split Spoon	Drillers: Glen & Matt	Drilling Date: Start: 9/6/00 End: 9/6/00	Borehole Coordinates:	ш	Sample Number											NG METHODS: Hollow Stem A Boild Stem A Hand Auger Air Rotary Dual Tube Rol Foam Rotary Mud Rotary Mud Rotary Cable Tool Lesting	Driving Ortil Through Casing
0 9 85	Ciles	Drill	Drill	Drill	Drill	Bore	z	elqms2 eqvT	SS	SS	SS								OY AN ERE AND AN ERE	- 1

BOREHOLE LOG BBF-SED-09	Project Name: Muddy River Project Number: 1517-28449-SR.SEDSAMP.FIELD	Surface Elevation (ft.):	Total Depth (ft.): 4	Depth of Water (ft.): 2.5	Abandonment Method: Collapsed	Field Screening Instrument: OVM w/ 10.2 PID	Logged By: K. Dillaway	Majerial Description	O-2: Wet, very loase, black, medium to fine SAND and organic SILT, trace gravel.	2-4: Wat, very lose, gray/brown-black, medium to fine SAND and PEAT, trace shell fragments (native).	End of Boning at 4 feet BSG.			REMARKS	
<u> </u>								Stratum Designation					 		Sample ampler ore
	tment							Graphic						SNO	NG TYPES: Augerdanb Sample California Sampler 1.3° Rock Core 2.1° Rock Core (Beoprobe Hydro Punch Shittspoon Shetty Tube Wash Sample
	Depar		noo		00/9			Blows per 6 Inches	WOH	WOR				VIATI	5
TI TI	reation		Split Spo		End: 9/6/00			Field Instrument Reading (mqq)	0.3	0.0				ABBRE	A S S X X S H S P S P S P S P S P S P S P S P S P
× S S S	nd Rec	o-Tek	TC/3.					Depth (ft.)	0	1	ro.	0	5	ONO	
Straet 1 02139	Boston Parks and Recreation Department Location: Back Bay Fens	ctor: Ge	WRig: D	& Matt	Start: 9/	dinates:		Sample Recovery (Inches)	24/18	24/14			 	EXPLANATION OF ABBREVIATIONS	Auger Jary Jary
COMPLEASER & MONEY SO Hampshire Street Cambridge, MA 02139	Client: Boston Parks and Recreal Project Location: Back Bay Fens	Drilling Contractor: Geo-Tek	Drilling Method/Rig: DTC/3" Split Spoon	Drillers: Glen & Matt	Drilling Date: Start: 9/6/00	Borehole Coordinates:	E	Sample						ă	NG METHODS: Hollow Stam. Hollow Stam. As Solid Stam As Hend Auger Air Rotary Deal Tube Ro Foem Rotary Naud Rotary Reverse Circ. Cable Tool Jettino
3 8 8	Cllent: Project	Drill	Drill	Dritte	Dall	Bore	z	Semple eqyT	SS	SS					HASA HASA POTA FIN

BOREHOLE LOG BBF-SED-10	Project Name: Muddy River Project Number: 1517-28449-SR.SEDSAMP.FIELD	Surface Elevation (ft.):	Depth of Water (ft.): 4.5	Abandonment Method: Collapsed	Field Screening instrument: OVM w/ 10.2 PID	Logged By: K. Dillaway	Malerial Description	0-2: Wet, very lose, black, medium to fine SAND and organic SILT. 2" of Peat in tip.	2-4"; Weit, very loose, brown-black, medium to fine SAND and PEAT (native). Strong organic odor.	End of Boring at 4 feet BGS.					REMARKS	
<u> </u>	ent						Log Stratum Designation								S	3 AMPLING TYPES. AS A ANGED TO SURPLY OF SURPL
	Departm		5	9/00			Blows per 6 Inches Graphic	MOW HO HO HO HO HO HO HO HO HO HO HO HO HO	мон						EXPLANATION OF ABBREVIATIONS	MPLING TYP Augent 1.5° Ro Geopra Geopra Geopra Shelts She She She She She She She She She She
	creation	41	100 mg	End: 9/			Ineminant bleid gnibeeA (mqq)	0.0	0.0						FABBRE	e a a a a a a a a a a a a a a a a a a a
	and Re	3eo-Tek	2	00/9/6	22		Elex. Depth (ft.)	0	· · ·	w	 9	1 1	15	1 1	TIONO	
Street A 02139	n Parks on: Ba	actor: C	& Matt	Start:	rdinates		Sample Recovery (Inches)	24/24	24/18						CPLANA	P. Auger Auger Auger Auger Auger Y Y
Combridge, MA 02139	Client: Boston Parks and Recreation Department Project Location: Back Bay Fens	Drilling Contractor: Geo-Tek	Drillers: Glen & Matt	Drilling Date: Start: 9/6/00 End: 9/6/00	Borehole Coordinates:	ш	Sample								9	METHC oldows and Su and Au ir Rota oual Tub oual
80	Clie	Drill	i i	E L	Bore	z	Sample:	SS	SS							HASA - H HASA - H HAS

Sheet 1 of 1	5	Project Name: Muddy River Project Number: 1517-28449-SR:SEDSAMP-FIELD	Surface Elevation (ft.):	Total Depth (ft.): 10	Depth of Water (ft.): 0.7	Abandonment Method: Collapsed	Field Screening Instrument: OVM w/ 10.2 PID	Logged By: J J Callahan	Material Description	0-2: Wet, very loose, black, coaree to fine SAND, some brick and glass, trace organics, decomposed leaves, sticks, and fine gravel (in spoon ftp).	2.4.* Wet, loose, black, ORGANICS, decomposed leaves, trace coarse to fine gravel and glass. Moderate organic odor.	4-6": Wat, loose, black to grey to brown, coarse to fine SAND, little organics, peat, trace silt and fine gravel.	6-8: Wet, dense, black, coarse to fine SAND, some organics (decomposed leaves, sticks, etc.), trace fine gravel and silt.	8-10": Top 12" Wet, dense, black, coarse to fine SAND. Bottom 12" Wet, Dense, grey SILT (native).	Bottom of Exploration at 10 ft.	
-		+							mutant2 notisengiaed	******	· · · · · · · · · · · · · · · · · · ·		VALUE OF THE PARTY			
		ırtmer				0			Graphic Log		*****					
		Depa		noo		//25/0			Blows per 6 Inches	WOH WOH	- 66	N 10 10 - 4	n eu & C	8 2 2 8		
KEE		creation		Split Sp		End: 7			Field Instrument Reading (mdq)	0.0	0.0	0.0	0.0	0.0		
& Mc		und Re	Bo-Te	TC/3		25/00			Elex Depth (ft.)	0	, ,	2			9	ro T
ESSER	Fre Street	n Parks s	actor: G	d/Rig: D	Dave & Matt	Start: 7	rdinates:		Sample Recovery (Inches)	24/3	24/4	24/5	24/22	24/24	-1-1	
CAMP DRESSER & MCKEE	CDM 50 Hampshire Street Cambridge, MA 02139	Client: Boston Parks and Recreation Department Project Location: Back Bay Fens	Drilling Contractor: Geo-Tek	Drilling Method/Rig: DTC/3" Split Spoon	Drillers: Dave	Drilling Date: Start: 7/25/00 End: 7/25/00	Borehole Coordinates:	ш	Sample							
0	80	Cile	Drill	Drill	Dull	Drill	Bon	z	elqma2 aqyT	SS	SS	SS	SS	SS		

100

BOREHOLE BBF-SED-12

CAMP DRESSER & MCKEE

Cambridge, MA 02139

Project Number: 1517-28449-SR.SEDSAMP, FIELD

Surface Elevation (ft.):

Project Name: Muddy River

Client: Boston Parks and Recreation Department

Project Location: Back Bay Fens

Drilling Contractor: Geo-Tek

### Glen & Matt DTC/3 ### Glen & Matt	Split Spoon Total Depth (ft.): 8 Depth of Water (ft.): 2.5	End: 9/6/00	Field Screening instrument: OVM w/ 10.2 PID	Logged By: K. Dillaway	inemuniani bieli (mamuniani bieli (mamun	WOR 0-2: Wet, very loose, black, medium to fine SAND and organic SILT.	0.0 WOR 2-4: As above.	NA WOR 4-6: As above.	WOR 6-8: Wet, medium dense, grey, coarse to fine SAND, 2* of day in tip of spoon (native).	End of Boring at 8 feet BGS.	EXPLANATION OF ABBREVIATIONS REMARKS	SAMPLING TYPES: A8. * August The Sample CB* - Calledonia Barmyler CB* - Calledonia Barmyler CB* - Talledonia Barmyler CB* - Talledonia Barmyler CB* - Talledonia Calledonia CB* - Talledonia CB* - CB* - T
	Drilling Method/Rig: DTC/3" Split Spoon Drillers: Glen & Matt	Drilling Date: Start: 9/6/00 Enc	Borehole Coordinates:		Hecovery (inches)	0	 	5	 	0 2	PLANATION OF AB	Hollow Stem Auger Hollow Stem Auger Solid Stem Auger Hand Auger Mar Potary Oual Tube Rotary

Reviewed by: J. M. C. 16 Dete: 12/11/00

REMARKS

EXPLANATION OF ABBREVIATIONS

BOREHOLE LOG 8BF-SED-13	eation Department Project Name: Muddy River ns Project Number: 1517-28449-SR.SEDSAMP,FIELD	Surface Elevation (ft.):	bilt Spoon Total Depth (ft.): 6	Depth of Water (ft.): 4.5	d: 9/6/00 Abandonment Method: Collapsed	Field Screening Instrument: OVM w/ 10.2 PID	Logged By: K. Dillaway	
CAMP DRESSER & MCKEE COMPOSITION OF THE STREET SO Hampathre Street Cambridge, MA 02139	Client: Boston Parks and Recreation Department Project Location: Back Bay Fens	Drilling Contractor: Geo-Tek	Drilling Method/Rig: DTC/3* Split Spoon	Drillers: Glen & Matt	Drilling Date: Start: 9/6/00 End: 9/6/00	Borahole Coordinates:	ш	

Sample

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SS

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Sheet 1 of 1

LOG

BOREHOLE BBF-SED-14

CAMP DRESSER & MCKEE

Project Number: 1517-28449-SR.SEDSAMP.FIELD

Surface Elevation (ft.): Total Depth (ft.): 4

Project Name: Muddy River

Client: Boston Parks and Recreation Department

50 Hampshire Street Cambridge, MA 02139

Field Screening Instrument: OVM w/ 10.2 PID

Logged By: K. Dillaway

Abandonment Method: Collapsed

Depth of Water (ft.): 4.5

Project Location: Back Bay Fens	Drilling Contractor: Geo-Tek	Drilling Method/Rig: DTC/3" Split Spoon	Drillers: Glen & Matt	Drilling Date: Start: 9/6/00 End: 9/6/00	Borehole Coordinates:	ш	eqqTf elqme2 So ST eqqTf eqq	SS 24/24 - 0.0	SS 24/18 - 0.0	100		100		00/61/21		Comparison Com
Project Number: 1517-28449-SR.SEDSAMP.FIELD	Surface Elevation (ft.):	Total Depth (ft.): 6	Depth of Water (ft.): 4.5	Abandonment Method: Collapsed	Field Screening Instrument: OVM w/ 10.2 PID	Logged By: K. Dillaway	Material Description	0-2: Wet, very losse, black, medium to fine SAND and organic SILT. Slight petroleum odor.	2.4. Wet, very loose, brown to black, coarse to fine SAND and organic SILT, trace fine gravel.	4-6: Wet, loose, grey, medium to fine SAND (native).	End of Boring at 6 feet BGS.				REMARKS	Reviewed by: J. M. CALL [[E] Date:]&/11/60
oject Location: Back Bay Fens	Iling Contractor: Geo-Tek	iling Method/Rig: DTC/3° Split Spoon	llers: Glen & Matt	iling Date: Start: 9/6/00 End: 9/6/00	rahole Coordinates:	Ш	edynes edynes edynes (serbin) Yevoorh Edding (mqq) Polican edonol edonol serbini edonol serbini edonol mulauls	24/24 - 0.0 WOR	24/20 - 0.0 WOR	24/12 - 5 - 0.4 5		10	1 1	<u> </u>	EXPLANATION OF ABBREVIATIONS	March Marc

MUDDY MYER BE MANBER GPJ COM MA.GOT 12/13/00

	and organic SILT.	race shells (native).						Date: 1.2 //1/90
Materiel Description	0-2: Wet, very loase, black, medium to fine SAND and organic SILT.	2-4: Wel, vary loose, grey, fine SAND and SILT, trace shells (native).	End of Boring at 4 feet BGS.			REMARKS		Reviewed by: Themalle
		1					**	
mutent2 notisegnation	-						Sample Sample Core	5
Graphic Log Stratum Designation						ONS	TYPES: per/Grab Serry flornia Sarry flornia Sarry flornia Sarry Flock Core oprube fro Punch it Spoon fly Tube ah Sample	ove Ground riace
Pod mutent2	MOW WOR	WOR				VIATIONS	Argen/Grab Sample California Sample Liff Rock Gora 2.1° Rock Cora Qeprobe Rhydro Punch Spill Spoon Shaby Tube Wash Sample	3 - Above Ground Surface
Heading (ppm) Blows per 6 Inches Cataphic Log	0.					F ABBREVIATIONS	SAMPLING TYPES: A8 Avgardans Barry C8 Cellionis Branch C9 Cillionis Branch C9 Cillionis Branch C9 Cellionis Branch C9 Cellioni	AGS - Above Ground Surface
Field Instrumer Reading (ppm) Blows per 6 Inches Log Log	0.	WOR	ļo [5	5 2		ON OF ABBREVIATIONS	SAMPLING TYPES: RINK C.B. C. Allionia Brownia B.X. 1.15 TROCK Cove B.X. 2.17 Reck Cove B.X. 2.17 Reck Cove G.P. Gloppings The Hyro Phyro Phyrib S.S. Spill Spon W.H. S. Spill Spon	AGS - Above Ground
Heading (ppm) Blows per 6 Inches Caraphic Log	0.0	WOR	ļu ļc	5 10	1 1 1	PLANATION OF ABBREVIATIONS	APA PROPERTY OF THE PROPERTY O	AGS .
Hecovery (Inches) (E) (E) (E) (E) (Applied inches per (Ches) (Applied inches in	0.0	0.0	ļ.o. [5	5 2		EXPLANATION OF ABBREVIATIONS	PART PART PART PART PART PART PART	Ads .

BOREHOLE LOG	Project Name: Muddy River Project Number: 1517-28449-SR.SEDSAMP.FIELD	Surface Elevation (ft.):	Total Depth (ft.): 8	Depth of Water (ft.): 0.8	Abandonment Method: Collapsed	Fleid Screening instrument: OVM w/ 10.2 PID	Logged By: JJ Callahan	Material Description	0-2: Organics (black) consisting of decomposed leaves, grass and moderately sized sticks/ branches. (No sample)	2-4". Wet, medium dense, dark gray, medium to fine SAND, some organics (peet and leaves), trace fine gravel.	4-6: Top 14" Wet, very lose, dark grey to grey, coerse to fine SAND and crisinic SIT. Boltom 10" Wet were lose mare SIT in command.	(native). 6-8: Wel, very loace, grey, organic SILT (native).	Bottom of Exploration at 8 feet BGS.			REMARKS	
	ent							Log holisugused	*****	******	***					-	SAMPLING TYPES: A8 - Augericans Sample A8 - Augericans Sample BX - 1 - Floods Core BX - Shift Spoon BY - Floods Core BY - Flor
	Departm		no		26/00			Blows per 6 Inches Graphic	* 8 8 :	* n 2 n n	NN	WOH 2				NOLLA	PulNG TYPES: Auger/drab Sar Cellionia Semple 1.5' Rock Core 2.1' Rock Core 2.1' Rock Core 2.1' Rock Core 3.1' Rock Core 3.1' Rock Core 3.1' Rock Core 4.1' Rock Core 5.1' Rock Core 6.1' Rock Core 6.1' Rock Core 7.1' Rock Core 8.1' Rock Core 9.1' Rock Core
	reation (DTC/3" Split Spoon		End: 7/			Field Instrument Reading (mqq)	N N	0.0	0.0	0.0				ABBREV	SAMPLIN AS CS CG CG CG CG CG . CG CG CG CG . CG
	and Rec k Bay F	eo-Tek	TC/3" S		/26/00			Elev. Depth (ft.)	0	+	lo.	-	01	10	1 1 1	NO NO	
Street A 02139	Parks on: Bac	ctor: G	J'Rig: C	& Matt	Start: 7	dinates		Sample Recovery (Inches)	24/0	24/2	24/24	24/24				EXPLANATION OF ABBREVIATIONS	Auger uger dany
CDM 50 Hampshire Street Cambridge, MA 02139	Client: Boston Parks and Recreation Department Project Location: Back Bay Fens	Drilling Contractor: Geo-Tek	Drilling Method/Rig:	Drillers: Dave & Matt	Drilling Date: Start: 7/26/00 End: 7/26/00	Borehole Coordinates:	ш	Sample								EXI	40 METHODS: Hollow Slam Auger Sould Stem Auger Boald Stem Auger Hand Auff Rotary Auf Rotary Foam Rotary Foam Rotary Reverse Circulation Cable Tool
80	Cife	Drill	Drd	Dri	Drill	Bon	z	Sample	SS	SS	SS	SS					DPRLLIN HSA . SSA . SSA . HAA HAA HAA HAA HAA HAA HAA HAA HAA HA

BOREHOLE LOG BBF-SED-16	Project Name: Muddy River Project Number: 1517-28449-SR.SEDSAMP.FIELD	Surface Elevation (ft.):	Total Depth (ft.): 6	Depth of Water (ft.): 4.5	Abandonment Method: Collapsed	Field Screening Instrument: OVM w/ 10.2 PID	Logged By: K. Dillaway	muls-VS Designation Material Description	0-2': Wet, very loose, black, medium to fine SAND and organic SILT, trace day,	2-4: As above.	4-6*: Wet, very loose, grey, fine SAND and SILT, trace shells (native).	End of Boring at 6 feet BGS.			REMARKS	
	Client: Boston Parks and Recreation Department Project Location: Back Bay Fens	¥	Split Spoon		End: 9/6/00			Field Instrument Peading (mqq)	0.0	Push	0.0				EXPLANATION OF ABBREVIATIONS	SAMPLING TYPES: A6 - Adaptiving Sumple C8 - Calliones Sumple C8 - Calliones Sumple C9 - Calliones Sumple WX - 2.1* Rock Core WX - 2.1* Rock Core WY - 3.1* Rock Core WW - Wann Sumple O'HER - Wann Sumple
Street	Client: Boston Parks and Recreat	Drilling Contractor: Geo-Tek	Drilling Method/Rig: DTC/3" Split Spoon	& Matt	Drilling Date: Start: 9/6/00 End: 9/6/00	dinates:		Sample Recovery (Inches)	24/24 -	24/12	24/10 5		10	15	 LANATIONO	Auger Auger Jetary y
Cambridge, MA 02139	ient: Boston oject Locatic	rilling Contra	Illing Methoc	Drillors: Glen & Matt	illing Date:	Borehole Coordinates:	ш	Sample Number							EX	LING METHODS: Hollow Stam Auger Solid Stam Auger Hand Auger Air Robary Oual Tube Robary Foam Robary Rewerse Circutation Cather Tool

reation Department Project Name: Muddy River Project Number: 1517-28449-SR.SEDSAMP.FIELD	Surface Elevation (ft.):		Depth of Water (ft.): 0.0		Logged By: J J Callahan	Meading Meadin			J. S.	0.0 6 SLT Top 6": Wet, medium dense, grey, medium to fine SAND and SILT Media 12": Wet, medium dense, grey, coarse to fine SAND.	Bottom of Exploration at 8 feet BGS.				ABBREVATIONS SAMPLING TYPES SAMPLING TYPES Call ordinal Sample Call	His hydro Punch S Sale Spoon W Sheey Tube W Sheey Tube M Sheey Tube A Sheey Tube
Soston Parks and Recocation: Back Bay F	Sontractor: Geo-Tek	Aethod/Rig: DTC/3" \$	Dave & Matt	Date: Start: 7/26/00		oldmes omple or mexone or merches or merches (ft.)	24/20 -	24/15	24/6	24/24	10		<u> </u>		EXPLANATION OF THOOS: ow Stem August of Stem August of August overy	M Rotary Motary was Circutation te Tool mg
	Client: Boston Parks and Recreation Department Project Name: Mudd Project Location: Back Bay Fens Project Number: 15	lon Department	reation Department ens Spirt Spoon	ment	partment /	ment	Strains contracts to the strains of	airiqarə	BE Siring not and an analysis of an	ed airtgan air	BE SirkqnD notember of muter)2 notember of mutery sirkqnD notember of muter	endengised mulasis notations of the control of the	E airkqma Pol	ed and and and and and and and and and an	e oldgenD god mutest2 notisequeed	Signature Compiler Co

BOREHOLE LOG BBF-SED-18	Project Name: Muddy River Project Number: 1517-28494-SR SEDSAMP FIFID	Surface Elevation (ft.):	Total Depth (ft.): 8	Depth of Water (ft.): 1.2	Abandonment Method: Collapsed	Field Screening Instrument: OVM w/ 10.2 PID	Logged By: JJ Callahan	Material Description	0-2': Wet, very loose, grey, SILT and ORGANICS. Strong organic odor.	24; Wet, very loose, grey, organic SILT, some peat, trace fine sand.	4-6": Wet, loose, grey, organic, SILT, some peat, trace clay (native).	6-8: Wet, loose, grey, organic, SILT, some peat, trace clay (native).		Bottom of Exploration at 8 feet BGS.	REMARKS	O CATALONIA I
B O BBF.	epartment		_		00/2			Graphic Log Stratum Designation	1(12") work	v - v ·		9	mmwa	ŭ	NOTA	Helbid Thress: sample California sample California sample 1.1 Flock Core Geoprock Core Septis Stoom Spall Stoom Spall Stoom Sharky Tube
	Client: Boston Parks and Recreation Department Protect Location: Back Bay Fers	3eo-Tek	Drilling Method/Rig: DTC/3" Split Spoon		Drilling Date: Start: 7/27/00 End: 7/27/00	2		Themunitani bleif (mqq)	0.0	0.0	-	5 0.0	0.0	0	EXPLANATION OF ABBREVIATIONS	ASAMPLIA ASAMPLIA AND ASAMPLIA AND ASAMPLIA
CDM 50 Hampshire Street Cambridge, MA 02139	Client: Boston Parks and Recreat	Drilling Contractor: Geo-Tek	ing Method/Rig:	Drillers: Dave & Matt	Ing Date: Start:	Borehole Coordinates:	ш	Number Sample Sample Recovery (inches)	24/22	24/24		24/24	24/24		FXPLANA	NG METHODS: Hollow Stam Auger Sold Stam Auger Aut Footsay Poun Rotary Foun Rotary Mand Rotary Reverse Circutation Cable Tool
O.S.O.	Clier	Drill	Drill	Drille	Drill	Bore	z	Sample	SS	SS		SS	SS			DRULLIN HSA HSA AA AA DTR CCT

CAMP DRESSER & MOKEE CDM SO Hampshire Street Cambridge, MA 02139	BOREHOLE LOG BBF-SED-19
Client: Boston Parks and Recreation Department Project Location: Back Bay Fens	Project Name: Muddy River Project Number: 1517-2849-SR.SEDSAMP.FIELD
Drilling Contractor: Geo-Tek Drilling Method/Rig: DTC/3" Split Spoon	Surface Elevation (ft.): Total Deeth (ft.): 10
Drillers: Glenn & Tom	Depth of Water (R.): 1.5
Drilling Date: Start: 8/15/00 End: 8/15/00	Abandonment Method: Collapsed
Borehole Coordinates:	Field Screening Instrument: OVM w/ 10.2 PID
w z	Towns of the second of

LOG

BOREHOLE BBF-SED-20

CAMP DRESSER & McKEE

Project Number: 1517-28449-SR.SEDSAMP.FIELD

Surface Elevation (ft.): Total Depth (ft.): 6

Project Name: Muddy River

Client: Boston Parks and Recreation Department

50 Hampshire Street Cambridge, MA 02139

Project Location: Back Bay Fens Drilling Contractor: Geo-Tek Field Screening instrument: OVM w/ 10.2 PID

Logged By: K. Dillaway

Abandonment Method: Collapsed

Drilling Date: Start: 8/14/00 End: 8/14/00

Borehole Coordinates:

Drilling Method/Rig: DTC/3" Split Spoon

Drillers: Glenn & Tom

Depth of Water (ft.): 2.5

LOG	SR.SEDSAMP.FIELD				peq	VM w/ 10.2 PID		5	fine SAND and ORGANICS.		ND, trace gravel.		rse to fine SAND, trace gravel.	grey, fine SAND and SILT (native).	 	
BOREHOLE L	Project Name: Muddy River Project Number: 1517-28449-SR.SEDSAMP.FIELD	Surface Elevation (ft.):	Total Depth (ft.): 10	Depth of Water (ft.): 1.5	Abandonment Method: Collapsed	Field Screening Instrument: OVM w/ 10.2 PID	Logged By: K. Dillaway	Material Description	0-2: Wet, very loose, black, medium to fine SAND and ORGANICS.	2-4: Wet, loose, black, ORGANICS.	4-6": Wet, loose, grey, coarse to fine SAND, trace gravel.	6-8': As above.	8-10": Top 6": Wet, very loose, grey, coarse to fine SAND, trace gravel.	Bottom 12": Wet, very loose, grey, fine S Strong odor.	Bottom of Exploration at 10 ft BGS.	
	ment							Graphic Log Stratum Designation					×			
	n Depart		nood		8/15/00			Blows per	WOR	040	0000	5 50 01 01 01 01 01 01 01 01 01 01 01 01 01	m - v	ı ← 0		
	creatio		Split S		End:			memuntant bleiii gnibsefi (mqq)	9.0	A N	0.0	NA A		0.0		
	and Re	eo-Te	TC/3	_	/15/00	**		Depth (ft.)	0	1 1	co.	,			9	5
Street A 02139	Parks on: Bac	ctor: G	VRIg: C	& Tom	Start: 8	dinates		Sample Recovery (inches)	24/12	24/1	24/12	24/8		24/12		
CDDM 50 Hampshire Street Cambridge, MA 02139	Client: Boston Parks and Recreation Department Project Location: Back Bay Fens	Drilling Contractor: Geo-Tek	Drilling Method/Rig: DTC/3" Split Spoon	Drillers: Glenn & Tom	Drilling Date: Start: 8/15/00 End: 8/15/00	Borehole Coordinates:	ш	Sample								
80	Cile	Drill	Drill	Drill	Drill	Bon	z	Sample	SS	SS	SS	SS	1	SS		

Material Description	0-2: Wet, very loose, black, medium to fine SAND and organic SILT. Oily sheen.	2-4°; As above.	4-5: Wet, very loose, gray, fine SAND and PEAT (native). Strong organic odor.	Bottom of Exploration at 6 leet BGS.							REMARKS		Reviewed by: J. M. C. M. C. Date: 12/11/01
Stratum						_						ample r	
Graphic Log					 					_	NS	LING TYPES: Augeridate Sample 1.6 Rock Core 2.1 Rock Core 4.6 Rock Core 6.9 Rock Core 6.9 Rock Core 6.9 Rock Core 7.9 Rock Core	Above Ground Surface
Blows per 6 Inches	Push	WOR	Push								VIATIO	SAMPLING TYPES: AS Augeridate SAS A Augeridate SAS A SA Augeridate SAS A SAS	Surfa
fineminitani bleii gnibseff (mqq)	A N	A A	¥ Z								ABBRE	S A S A S A S A S A S A S A S A S A S A	AGE
Elev. Depth (ft.)	0	1 1	60		 0		15				NON OF		
Sample (Inches)	24/22	24/18	24/22								EXPLANATION OF ABBREVIATIONS	Auger Mger stary	Casing
Sample											EX	PRILLING METHODS: 185A - Soid Stem Auger 185A - Soid Stem Auger 187A - Method Auger 187A - Method Auger 187A - Method Auger 187A - Soin Rolay 187A - Method Rolay 187A	Drill Through Casing
Sample	SS	SS	SS		 							DRILLIN HSA - SSA - HAA AA OTH - FR - MR - CT -	DTC .
						 		00/01	GDT 12/	-VM_MG	o ta	DY_RIVER_BL MRNBBF.G	MUD

Reviewed by: J. M.C. Muller Date: (2/11/80)

SAMPLING TYPES:
A SAMPLING SITTLE
A SAMPLING SITTLE

REMARKS

EXPLANATION OF ABBREVIATIONS

MUDDY_RIVER_BL MANBBF.GPJ CDM_MA_GDT 12/13/00

BOREHOLE LOG BBF-SED-21	Project Name: Muddy River Project Number: 1517-28449-SR,SEDSAMP,FIELD	Surface Elevation (ft.):	Total Depth (ft.): 8	Depth of Water (ft.): 1.5	Abandonment Method: Collapsed	Field Screening Instrument: OVM w/ 10.2 PID	Logged By: K. Dillaway	Material Description	0-2". Wel, very loose, black, coarse to fine SAND and organic SILT. Oily sheen, petroleum odor.	2-4: Wet, very loose, black, coarse SAND and organic SILT. Olly sheen, petroleum odor. Brick in tip of spoon.	4-6": Wet, medium dense, coarse to fine SAND and GRAVEL, some bridk.	6-8": Wet, loose, black, coarse to fine SAND and GRAVEL, and concrete.	Bottom of Exploration at 8 feet BGS.			REMARKS	and the second s
	nent							Graphic Log Stratum									rPES: rrid(ab Sample sample sample sample sample sock Core fock Co
	Boston Parks and Recreation Department Location: Back Bay Fens		uou		/14/00				MON RO RO RO RO RO RO RO RO RO RO RO RO RO	4 0 1 0	0 0 2 ~ €					EXPLANATION OF ABBREVIATIONS	Califor Califo
	reation		split Spo		End: 8/14/00			Field Instrument Reading (mqq)	¥ Z	A X	A N	A Z				ABBRE	BAMPA CSS AND CSS AND
	and Rec k Bay F	eo-Tek	TC/3"					Elev. Depth (ft.)	0		LO.		2	, , ,	ñ	NON OF	
Street	Parks a	ctor: G	VRig: D	& Tom	Start: 8	dinates:		Sample Recovery (inches)	24/22	24/22	24/8	24/2				PLANA	Auger usery uteston
CD Nampshire Street Cambridge, MA 02139	Cilent: Boston Parks and Recreal Project Location: Back Bay Fens	Drilling Contractor: Geo-Tek	Drilling Method/Rig: DTC/3" Split Spoon	Drillers: Glenn & Tom	Drilling Date: Start: 8/14/00	Borehole Coordinates:	ш	Sample								ă	Hollow Stem. Solid Stem Av Hand Auger Au Fourny Dual Tube Ro Foam Rolany Mud Rotary Reverse Circt Cable Tool Jething
និនិ	Client: Project	Dr.	Ordin	Ortile	J.	Sore	z	Sample	SS	SS	SS	SS					SSA LLI

HOLE LOG	Project Name: Muddy River Project Number: 1517-28449-SR.SEDSAMP.FIELD	Surface Elevation (ft.):	Total Depth (ft.): 8	Depth of Water (ft.): 1.5	Abandonment Method: Collapsed	Field Screening Instrument: OVM w/ 10.2 PID	Logged By: K. Dillaway	Material Description	0-2': Wet, very loose, black, coarse SAND, trace organic SILT. Olly sheen, petroleum odor.	2-4*; Wet, losse, black, coerse to fine SAND, some gravel, trace wood and organics.	4-6". Wet, loose, black, coarse to fine SAND, trace gravel, 3" peat in tip.	6-8: Wet, very loose, grey, fine SAND and organic SILT (native). Strong odor.	Bottom of Exploration at 8 feet BGS.				REMARKS	
BOREH BBF-SED-21A	Project Ni Project Ni	Surface E	Total Dep	Depth of	Abandonr	Field Scre	Logged B	notisenglased	0-2': Wet, very sheen, petrole	2-4": Wet, loos and organics.	4-8": Wet, loos tip.	6-8': Wet, very Strong odor.	Bottom of Expi					
	+							Stratum	××××	*******	·	X 445 - 44 - 44 - 44 - 44 - 44 - 44 - 44						rfges: rfgrab Samy rria. Sample Tock Core Tock Core Tobe Punch Spoon Y Tube I Sample
	rtmer				0			Graphic		******	******						IONS	NG TYPES: Auger/Grab Auger/Grab 1.6* Rock C 2.1* Rock C Geoprobe Hydro Pune Spill Spoon Shelby Tub Wash Sam
	Depa		non		/14/0			Blows per 6 Inches	WOR	100	0000						VIAT	SAMPLING TYPES: AS A Augusfrinb Sample AS California Sample EX 15 Flock Core NX 2.1' Rock Core OF Gapstrabe HP Hydro Plunch SS Spill Spoon ST Sheby Tube W S Wash Sample
	creation Fens		Spllt Spo		End: 8			Field Instrument Beading (mqq)	A N	A X	A S	NA					F ABBRI	AS A S A S A S A S A S A S A S A S A S
	nd Re Bay	o-Tek	LC/3		14/00			Elex. Depth (ft.)	0	' '	ro	, , ,	9		15		ONO	
Street A 02139	Parks a	ctor: Ge	VRIg: D	& Tom	Start: 8/	dinates:		Sample Recovery (Inches)	24/22 -	24/8	24/22	24/22		1 1	11	1 1 1	EXPLANATION OF ABBREVIATIONS	Auger Auger Lotery V
CEDIM 50 Hampshire Street Cambridge, MA 02139	Client: Boston Parks and Recreation Department Project Location: Back Bay Fens	Drilling Contractor: Geo-Tek	Drilling Method/Rig: DTC/3" Split Spoon	Drillers: Glenn & Tom	Drilling Date: Start: 8/14/00 End: 8/14/00	Borehole Coordinates:	ш	Sample									X	Hollow Stam Auger Hollow Stam Auger Hand Stam Auger Hand Auger Air Rotary Air Rotary Foam Rotary Foam Rotary Ravarse Circulation Cable Tool
လိုပိ	Cile	Drill	F	٥٠١	Drill	Bon	z	Sample eqyT	SS	SS	SS	SS						HAY

CEDM BOR E HOLE COG CAMPORESSER & MarkEE BOOR E HOLE LOG BRF-SED-22 Carrendors, MA Catings BOR E HOLE LOG BRF-SED-22 Carrendors, MA Catings Browning Contraction: Back Bay Fina; Project Number: 1517-284-98-98. EDSAMP-FIELD Project Number: 1517-284-98-98-98-98-98-98-98-98-98-98-98-98-98-	Sheet 1 of 1		FIELD				_				ganic SILT,	eat (native).				
So Sold Sold Sold Sold Sold Sold Sold So	о П	10 L E L O	Project Name: Muddy River Project Number: 1517-28449-SR.SEDSAMP	Surface Elevation (ft.):	Total Depth (ft.): 4	Depth of Water (ft.): 2.5	Abandonment Method: Collapsed	Field Screening Instrument: OVM w/ 10.2 PIE	Logged By: K. Dillaway	Material Description	0-2: Wet, very loose, black, medium to fine SAND and o trace gravel.	2.4: Wet, vary loose, gray, fine SAND and SILT, some p Strong organic odor.	Bottom of Exploration at 4 feet BOS.			REMARKS
Sisser & Mock Si		<u> </u>	reation Department ens		Split Spoon		End: 8/14/00			Hedding (ppm) Blows per 6 Inches Cataphic Log Log		-				ABBREVATIONS SAMPLING TYPES: A8 Adjusticate Sample C8 Californic Sample RX 11 Reac Cone RX 12
EX Afternoon and the State of	ESSER & McK	50 Hampshire Street Cambridge, MA 02139	Parks and Recon: Back Bay F	Drilling Contractor: Geo-Tek	d/Rig: DTC/3"	Drillers: Glenn & Tom	Start: 8/14/00	Borehole Coordinates:		(luches)		24/22 -	us .	10	15	EXPLANATION OF ETHOOS. Inclined Stem Augest and Augest Routy am Reday

BOREHOLE LOG BBF-SED-23		Project Name: Muddy River Project Number: 1517-28449-SR.SEDSAMP.FIELD	Surface Elevation (ft.):	Total Depth (ft.): 14	Depth of Water (ft.): 2.5	Abandonment Method: Collapsed	Field Screening Instrument: OVM w/ 10.2 PID	Logged By: K. Dillaway	Material Description	0-21: Wet, very losse, black, medium to fine SAND and ORGANICs, black sheen.	2-4: Wet, very loose, grey, coarse to fine SAND, trace brick.	4-6: As above.	6-8: Wat, loose, grey, coarse to fine SAND and SILT.	8-10"; Wet, very loose, grey, coarse to fine SAND, trace brick.	10-12: As above.	12-14: Wet, very loose, grey, fine SAND and SILT (native). Strong organic odor.	Bottom of Exploration at 14 feet BGS.		REMARKS
© 🛱	_	ŧ							Log Stratum Designation	××××		******	******		******				ATIONS MATYPES: Augusticas Sample List Rock Core Geoprobe Hydro Punch Spitt Spoon Spites Core Spites Spoon Wash Sample Above Ground
		artme				0			Graphic		******	*****	<u> </u>	*****	******				NG TYPES: Augarifarb San Augarifarb San 1.5° Rock Cora 2.1° Rock Cora 6.9° Rock Cora Balba Sanpiro Salar Spoon Sheby Tube Wash Sample Above Ground
		Depe		noc		/15/0			glows ber Blows per	NOR/24	4-4-	000	40044	~	N C1	WOR WOR			BAMPLING AS CAS CAS CAS CAS CAS CAS CAS CAS CAS C
		creation ens		Split Spo		End: 8			memutani blei- pribseA (mqq)	7	0.4	0.4	A N	A A	N A	0.0			EXPLANATION OF ABBREVIATIONS 100:
		Bay F	o-Tek	C/3		2/00			Elex Depth (ft.)	0	1 1	LC)	1	1	6	1-1-1	ro ro		o No
- 5	38	ks ar Back	Ge :	FD :	Lou	18 3	tes:		(luches)	2	go	90	4	1 8	4	10			NATIO
Stra	(A 02	n Par	actor	d/Rig	20	Star	rdina		Sample	24/12	24/8	24/8	24/4	24/6	24/4	24/10			EXPLAN ODS: Stem Auger tem Auger te
CDM 50 Hampshire Street	ambridge, N	Client: Boston Parks and Recreation Department Project Location: Back Bay Fens	Drilling Contractor: Geo-Tek	Drilling Method/Rig: DTC/3" Split Spoon	Drillers: Glenn & Tom	Drilling Date: Start: 8/15/00 End: 8/15/00	Borehole Coordinates:	ш	Sample Number									i	EXPLAY RAMETHODS: Hollow Stam Auger Solid Stam Auger Alt Rotary And Auger Alt Rotary Fram Rotary Fram Rotary Reverse Circulation Cable Tool Jetting
28	Ö	Cile	Dri	P-	E C	Drill	Bor	z	Sample	SS	SS	SS	SS	SS	SS	SS			SA A A A A A A A A A A A A A A A A A A

CAMP DRESSER & MCKEE CDM So Hampshire Street Cambridge, MA 02139	BOREHOLE LOG BBF-SED-24
Client: Boston Parks and Recreation Department Project Location: Back Bay Fens	Project Name: Muddy River Project Number: 1517-2849-SR.SEDSAMP.FIELD
Drilling Contractor: Geo-Tek	Surface Elevation (ft.):
Drilling Method/Rig: DTC/3" Split Spoon	Total Depth (ft.): 8
Drillers: Glen & Tom	Depth of Water (ft.): 4.5
Drilling Date: Start: 8/11/00 End: 8/11/00	Abandonment Method: Collapsed
Borehole Coordinates:	Fleid Screening instrument: OVM w/ 10.2 PID
m x	Logged By: K. Dillaway

Drillfin	Drille	Drillin	Boreh	z	elqma2 aqyT	SS	SS	SS	SS		MUDDY RIVER BY MANUSE GET 12/13/00
									_		
Total Depth (ft.): 8	Depth of Water (ft.): 4.5	Abandonment Method: Collapsed	Fleid Screening instrument: OVM w/ 10.2 PID	Logged By: K. Dillaway	Material Description	0-2: Wei, very loose, black, medium to fine SAND and organic SILT.	2-4: Top 9: As above. Bottom 3*: Wet, very loose, grey, fine SAND and SILT, trace peat	(native). 4-6: Wet, very loose, grey, fine SAND and SILT, trace peat (native).	6-8: Wet, medium dense, grey, fine SAND and SILT, trace shells (native).	End of Boring at 8 feet BGS.	PEMARKS Duplicate sample obtained at the 6-8 foot sample interval. Reviewed by: 3. M. C. M. C. L. Date: 13./11/20
					Pod mutava notrangiseO	×××××					S. Sample D. Sample Core Core Don The
		2			Graphic						BREVIATIONS a AMPLINO TYPES: a b AMPLINO TYPES: a b AMPLINO TYPES: a b Callioning Sym b Type Cape b
L000		8/11/0			Blows per 8 Inches	WOR	Push	WOH - 2 c	חו חו חו מו		EVIATION OF THE STATE OF THE ST
split Sp		End:			Pield Instrument gnibseR (mqq)	5.	NA N	3.3	0.0		A S S S S S S S S S S S S S S S S S S S
C/3 8		1/00			Elev. Depth (ft.)	0	1	to o	+	5 75	NO NO
JARIG: DI	A LOIN	Start: 8/	dinates:		Sample Recovery (Inches)	24/20 -	24/12	24/18	24/20		EXPLANATION OF ABBREVIATIONS COST COST CONTROL CONTRO
Drilling Method/Fig: DTC/3* Split Spoon	Unillers: Gien & 10m	Drilling Date: Start: 8/11/00 End: 8/11/00	Borehole Coordinates:	ш	Sample						EXF EXA BORLLING METHODS: SSA SEAS ESSA SSA SEAS ESSA SSA SEAS ESSA AN AM ESSA AN A
Drill			Bore	z	eldme2	SS	SS	SS	8		DOMLING SSSA SSSA SSSA SSSA SSSA SSSA SSSA SS

្ត ខេ	50 Hampshire Street Cambridge, MA 02139	Street A 02139					מ מ	BOKEHOLE LOG BBF-SED-25
Cle	Cllent: Boston Parks and Recreation Department	Parks	and Rec	reation	Depart	ment		Project Name: Muddy River
Pro	Project Location: Back Bay Fens	on: Bac	k Bay F	ene				Project Number: 1517-28449-SR.SEDSAMP.FIELD
P	Drilling Contractor: Geo-Tek	ctor: G	eo-Tek					Surface Elevation (ft.):
DHI	Drilling Method/Rig: DTC/3" Split Spoon	J/Rig: E	TC/3"	Split Sp	noc			Total Depth (ft.): 8
Drill	Drillers: Glen & Tom	& Tom						Depth of Water (ft.): 2.0
Drill	Drilling Date: Start: 8/11/00 End: 8/11/00	Start: 8	/11/00	End: 8	/11/00			Abandonment Method: Collapsed
Bon	Borehole Coordinates:	dinates						Fleid Screening Instrument: OVM w/ 10.2 PID
z	ш							Logged By: K. Dillaway
elqms2 eqyT	Sample	Sample Recovery (Inches)	Elev. Depth (ft.)	memuntant bleiñ gnibseñ (mqq)	Blows per	Graphic Log	mutet/2 nottengised	Material Description
SS		24/12	0	1.2	WOR		-	0-2: Wet, very loose, black, medium to fine SAND and organic SILT. Slight petroleum odor.
			1		WOR			2-4" As above.
SS		24/22	1	0.0				
				:	Push	***		4-6; Top 12": As above.
SS		24/18	'n	¥ Z			Г	Botom 6*: Wet, very loose, grey, fine SAND and SILT (native). Strong organic odor.
SS		24/24	 	0.0	or on or to			6-6': Wet, loose, grey, line SAND and SILT (native). Strong organic odor.
			,					End of Boring at 8 feat BGS
			6					
			13					
	Ě	EXPLANATION OF ABBREVIATIONS	TO NOT	ABBR	NATIC	SNS		REMARKS
DAILL HSA SSA AR HA DAR FRA FRA CT	HOG METHODS: Hollow Stem Auger Solid Stem Auger Hand Auger Air Rotary Foam Rotary Foam Rotary Hod Rotary Howers Circulation Cable Toge Leithing	B: Auger or Auger or Auger or Auger or Auger or Auger or Auger		S&ESXETSES	SAMPLING TYPES: A&A ANAPLING TYPES: California Sample X 1,5 Pock Coa KX 2,1 Pock Coa KX 2,1 Pock Coa HP Hyro Punch HP Hyro Punch SS 544 Spoon ST 55464 Spoon THE Wash Sample	NG TYPES: Auger/Grab Cadfornie 1.5° Rock Co 2.1° Rock Co Geoprobe Hydro Punch Split Spoon Sheky, Tube	a mpler	
4	- Driving				Thursday.		l	

			Sheet 1 of	0
CDM 90 Hampshre Street Garnbridge, MA 02139	BOREHOLE LOG BBF-SED-26	U		

Project Number: 1517-28449-SR.SEDSAMP.FIELD Abandonment Method: Collapsed Project Name: Muddy River Depth of Water (ft.): 3.0 Logged By: K. Dillaway Surface Elevation (ft.): Total Depth (ft.): 14 Cilent: Boston Parks and Recreation Department Drilling Date: Start: 8/11/00 End: 8/11/00 Drilling Method/Rig: DTC/3* Split Spoon Project Location: Back Bay Fens Drilling Contractor: Geo-Tek Borehole Coordinates: Drillers: Glen & Tom ш

Field Screening Instrument: OVM w/ 10.2 PID

Bottom 8". Wet, vary loose, grey, fine SAND, trace sit and shell fragments (native). Strong organic odor. 10-12". Wet, very loose, grey, coarse to fine SAND, some sit (native). Organic odor. 2.4: Wet, very loose, black, coarse to fine SAND and organic SILT, trace gravel. 0-2: Wet, very loose, black, coarse to fine SAND and orge trace gravel and peat in tip of spoon. End of Boring at 14 feet BGS. 8-10": Top 8": As above. 12-14": As above 6-8': As above. 4-6": As above. Graphic Log Stratum Designation field Instrument Reading (mqq) ted swold serbni 8 WOH WOH WOH 2 + 2 N

Sheet 1 of 1 6-8": Wet, very loose, gray, fine SAND and SILT, little organics, trace shells (native). 0-2": Wet, very loose, black, medium to fine SAND and organic SILT. Project Number: 1517-28449-SR.SEDSAMP.FIELD Field Screening Instrument: OVM w/ 10.2 PID LOG Abandonment Method: Collapsed Material Project Name: Muddy River BOREHOLE BBF-SED-27 Depth of Water (ft.): 2.5 Logged By: K. Dillaway Surface Elevation (ft.): End of Boring at 8 feet BGS. Total Depth (ft.): 8 4-6". As above. 2-4": As above Graphic Log Stratum Designation Client: Boston Parks and Recreation Department Drilling Date: Start: 8/11/00 End: 8/11/00 Blows per 6 Inches WOR NOR Drilling Method/Rig: DTC/3" Split Spoon inemuntani bi gaibseA (mqq) 1.7 ¥. 3.3 0.8 Project Location: Back Bay Fens CAMP DRESSER & MCKEE Drilling Contractor: Geo-Tek Depth (ft.) 10 15 Sample Recovery (Inches) Borehole Coordinates: Drillers: Glen & Tom 50 Hampshire Street Cambridge, MA 02139 24/18 24/18 24/22 24/22 CDM Sample Sample SS SS SS SS

5.0

24/22

88

Depth (ft.)

Semple Recovery (Inches)

Sample Number

Sample

×

24/8

SS

1.2

S

24/10

SS

¥Z

24/8

SS

×

24/18

SS

XX

24/22

SS

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Date: 12/1//00 Reviewed by: J. M. C. Mulle REMARKS **EXPLANATION OF ABBREVIATIONS** NUDDY_RIVER_BL MRNBBF.GPJ CDM_MA.GDT 12/13/00

Date: 12/11/00

Reviewed by: J. M. Mullen

REMARKS

EXPLANATION OF ABBREVIATIONS

HINER BE MEMBER GET COM MA GDT 12/13/00

0.0

24/18

SS

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CAMP DRESSER & MCKEE CDM SO Hampaire Street Cambridge, MA 02139	BOREHOLE LOG BBF-SED-28
Client: Boston Parks and Recreation Department Project Location: Back Bay Fens	Project Name: Muddy River Project Number: 1517-28449-SR.SEDSAMP.FIELD
Drilling Contractor: Geo-Tek	Surface Elevation (ft.):
Drilling Method/Rig: DTC/3* Split Spoon	Total Depth (ft.): 12
Drillers: Glen & Tom	Depth of Water (ft.): 4.5
Drilling Date: Start: 8/9/00 End: 8/9/00	Abandonment Method: Collapsed
Borehole Coordinates:	Field Screening Instrument: OVM w/ 10.2 PID
w z	Logged By: K. Dillaway

	Driller	Drillin	Boreh	z	Sample	SS	SS	SS	SS	-				HSA -
												00/61/21	SPJ COM_MAGOT	MODOL BIASE OF MEMBER
lotal Depth (11.): 12	Depth of Water (ft.): 4.5	Abandonment Method: Collapsed	Field Screening Instrument: OVM w/ 10.2 PID	Logged By: K. Dillaway	Material Description	0-2: Wet, very loose, grey, coarse to fine SAND, little organics, trace silt.	2.4: Wet, very loose, grey, coarse to fine SAND, trace gravel and brids.	4-6: Wet, very loase, grey, coarse to fine SAND, trace gravel.	6-8: As above.	8-10: As above.	10-12: Top 12: As above. Bottom 6: Wet, medium dense, gray, fine SAND, trace gravel (native).	Bottom of Exploration at 12 feet BGS.	REMARKS	Reviewed by: J. M. C. L. M. E. Date: 12/11/00
					mulsus notiseguation									and a polyton a
					Graphic Log								25	Mod TYPES: Auger/drab Sar California Samp California Samp California Samp California Samp Geoprobe Geoprobe Geoprobe Mash Samp Spill Spoon Sheby Tube Wash Sampla Above Ground
=		00			Blows per 6 Inches	Push				N N 10	- 00 =		OLLAI	Auge Calling T Calling 1181 2.10 1.81 8.90 8.90 8.90 8.90 8.90 8.90 8.90 8.90
ode mde		End: 8/9/			Ineminitari bleiii gnibaeiii (mqq)	7.6	5.2	¥ Z	₹ Z	A N	12.6		EXPLANATION OF ABBREVIATIONS	SAMPLIN SERVINE SERVIN
3		00/6			(ft.)	0	1	to.	1	+	0	2	ON OF	
	Lom	urt: 8/9	afes:		Sample Sample	24/.33	24/12	24/23	24/24	24/8	24/18		ANATI	ou du
Drining meurodrig: DIC/3 spiil spoon	Drillers: Glen & Tom	Drilling Date: Start: 8/9/00 End: 8/9/00	Borehole Coordinates:	ш	Number Number	24	24	24	24	2	58		EXPL	DOMLAND METHODS: \$\$A. Helion Stem Auger \$\$A. Helion Stem Auger AM. Helion Stem Stem AM. Helion Stem Stem AM. Helion Stem
5		Drilling	Bore	z	Semple Semple	SS	SS	SS	SS	SS	SS			HSA

MUDDY_RIVER_BL MRN88F.GPJ CDM_MA.GDT 12/13/00

, R.O.	Cambridge, MA 02139	Street A 02139					ш ш	BOREHOLE LOG BBF-SED-29
Pro Pro	Client: Boston Parks and Recreation Department Project Location: Back Bay Fens	Parks on: Bac	and Re	reation	Depa	rtmeni		Project Name: Muddy River Project Number: 1517-2849-SR.SEDSAMP.FIELD
Dri	Drilling Contractor: Geo-Tek Drilling Method/Rig: DTC/3* Split Spoon	ctor: G	eo-Tek	Spilt Sp	noo			Surface Elevation (ft.): Total Depth (ft.): 8
Dri	Drillers: Glen & Tom	& Tom						Depth of Water (ft.): 2.0
D	Drilling Date: Start: 8/9/00 End: 8/9/00	Start: 8	00/6/	End: 8/	00/6			Abandonment Method: Collapsed
Bor	Borehole Coordinates:	dinates						Field Screening Instrument: OVM w/ 10.2 PID
z	ш							Logged By: K. Dillaway
Sample	Sample	Sample Recovery (Inches)	Depth (ft.)	meminishi biei Pribee (mqq)	Blows per 6 Inches	Graphic go.l	mutett2 notangised	Material Description
SS		24/4	0	2.8	Push			0-2: Wel, very loose, black, medium to fine SAND and ORGANICS.
SS		24/2	1 1	A S	WOW T			2-4; Wet, very loose, black, medium to fine SAND and ORGANICS, trace wood churks.
SS		24/6	co l	1:0	0			4-5'. Wet, very loose, black/grey, coarse to fine SAND, trace sit and organica.
SS		24/18		1.2	- 004			6-6: Wet, loose, gray, coarse to fine SAND, some sit, trace gravel (native).
			10					Bottom of Exploration at 8 feet BGS.
			5					
								
	M	PLANA	ONOL	EXPLANATION OF ABBREVIATIONS	EVIATI	SNO		REMARKS
DRILLI HSA SSA HAA HAA DTR FR MIR RC CT	INO METHODS: Hollow Stam Auger Solide Stam Auger Hand Auger Air Rotary Out Tube Rotary Foam Rotary Mud Rotary Mud Rotary Reverse Circulation Cable Tool	Auger uger olary		AK SAN HOKENS	SAMPLING TYPES: AS Augustrans As Augustrans As Augustrans As Augustrans Augustrans As Augustrans As Augustrans As Augustrans As Augustrans Augu	TYPES: per/drab flomia S flomia S Flock C Plock C probe fro Pund fr Spoon fr Spoon fr Samp	Sampler ore ore	
OTC.	- Driving							

COMP DHESSEH & MCKEE CDM 50 Hampshire Street Cambridge, MA 02139	BOREHOLE LOG BBF-SED-30
Client: Boston Parks and Recreation Department Project Location: Back Bay Fens	nt Project Name: Muddy River Project Number: 1517-28449-SR.SEDSAMP.FIELD
Drilling Contractor: Geo-Tek	Surface Elevation (ft.):
Drilling Method/Rig: DTC/3" Split Spoon	Total Depth (ft.): 6
Drillers: Dave & Mike	Depth of Water (ft.): 1.4
Drilling Date: Start: 7/27/00 End: 7/27/00	Abandonment Method: Collapsed
Borehole Coordinates:	Field Screening Instrument: OVM w/ 10.2 PID
ш	Logged By: J J Callahan
Jue	U

	1								-	
	PEAT, trace coarse	ganics and peat (native).	s and peat (native).							C Date: 12/11/00
Material	0-2: Wet, very loose, grey, organic SILT and PEAT, trace coerse sand. Strong organic odor.	2-4: Wet, medium dense, grey SILT, some organics and peat (native).	4-6: Wet, medium dense, SILT, some organics and peat (native).	hat 6 feet BGS.				REMARKS		J. Memable
	0-2: Wet, very loose, sand. Strong organic	2-4". Wet, medium de	4-8': Wet, medium de	Bottom of Exploration at 6 feet BGS.						Reviewed by:
mutent2 notengiseQ		T							ampler mpler re re	
Graphic Log								 SNC	SAMPLING TYPEE. AS ANOPOTION Sumple CS California Sumple EX Lift Flood Conve NX 2.1* Flood Conve Flo	Above Ground Surface
Blows per 6 Inches	WOH (24")	K1 40 60	מו מו מו מו					VIATIO	APLING - Aug - 1.6" - 2.1" - Geo	S · Abc
tneminitani bleiil enibsefi (mqq)	0.0	0.0	0:0					ABBR	ASA SECONDARY SE	AG
Depth (ft.)	0		ru .		10		15	O NOL		
Sample Recovery (inches)	24/20	24/24	24/24			I I		EXPLANATION OF ABBREVIATIONS	Auger Auger Auger Outston	1 Casing
Sample								ă	DRILLING METHODS: HRA. Hollow Siam Auge SBA. Solid Stam Auge HA. Hand Auge DTR Outs The Rotary DTR Outs The Rotary FR Foam Holtery FR Foam Holtery RC Reverse Circultation JET - Jesting	- Drift Through Casing
Sample Type	SS	SS	SS						DANLL HISA NAR DOTR PRC CCT JET	DTC

HODY AIVER BL MANBRE GPJ COM MA GDT 12/13/00

BOREHOLE LOG BBF-SED-31	Project Name: Muddy River Project Number: 1517-28449-SR.SEDSAMP.FIELD	Surface Elevation (ft.):	Total Depth (ft.): 12	Depth of Water (ft.): 0.0	Abandonment Method: Collapsed	Fleid Screening instrument: OVM w/ 10.2 PID	Logged By: J J Callahan	Meterdal Description	0-2: Wet, very locae, black to brown, medium to fine SAND (street sand, run off debris), trace silt and asphalt, brick and glass.	2-4": Wet, loose, black to brown, medium to fine SAND, trace silt and asphalt, brick and glass.	4-6: Wet, loose, black to brown, medium to fine SAND, fittle organic silt, trace anthropogenic meterial.	6-8: Wet, loose, black, medium to fine SAND, some organic silt, trace sticks, leaves, and glass. Strong organic odor.	8-10": Top 12": Wet, very loose, brown, medium to fine SAND. Bottom 12": Wet, toose, black, medium to fine SAND and organio SILT, trace roots, lwigs, and peat.	10-12: Wet, medium dense, black to grey, fine SAND and SILT, little shells, trace organics and peat (nailye).	Bottom of Exploration at 12 feet BGS.	REMARKS	
	ent							Log mutanta		******	·	····	*****			S	NAG TYPES: Auges/Grab Sample 1.67 Nook Core 6.21.7 Nook Core Geoprobe Hydro Punch Sphi Spoon Shelly Tube Wash Sample
	spartm		_		8/00			Blows per 6 Inches	D 01 -	N = 10 01 0	D 10 4 6	N C C C		1 5 5 5 0		ATION A	AugerGrab S. AugerGrab S. AugerGrab S. California Sam: 1.5" Rock Cont. 2.1" Rock Cont. Geoprobe Hydro Punch. Sphi Spoon. Sheby Tube Wash Sample
Н	reation De		split Spool		End: 7/28/00			Field Instrument Reading (mqq)	0.0	0.0	0.0	0.0	0.0	0.0		EXPLANATION OF ABBREVIATIONS	SAMPLIN GS - C NX - 1 NX - 1 NY - C SS - C S S S S S S S S
N M M M M M M M M M M M M M M M M M M M	nd Rec	io-Tek	TC/3" S		7/28/00			Elev. Depth (ft.)	0	+	lo lo		+	 	r.	ON OF	
Street 1 02139	Parks a	ctor: Ge	VRIg: D	& Mike	Start: 7/	dinates:		Sample Recovery (inches)	24/18	24/8	24/14	24/14	24/24 -	24/24		LANATI	DS: tem Auger tem Auger ger ger y y y temy temy temy dery dery dery dery
COMPLETE A MICHEL So Hampshire Street Cambridge, MA 02139	Client: Boston Parks and Recreation Department Project Location: Back Bay Fens	Drilling Contractor: Geo-Tek	Drilling Method/Rig: DTC/3" Split Spoon	Drillers: Dave & Mike	Drilling Date: Start:	Borehole Coordinates:	ш	Sample								EXE	NO METHODS: Hollow Stern Auger Gold Stern Auger Sold Stern Auger Air Robary Dobar Tube Rockey Feam Rollary Reverse Circulation Jething
8 8 8	Ciler	Drill	Drill	Drille	Drill	Bore	z	Sample	SS	SS	SS	SS	SS	SS			DAILLIN HSA

CAMP DRESSER & McKEE CDM SO Hampshine Street Cambridge, MA 02139	Sheet 1 of 1 BOREHOLE LOG BBF-SED-32
Client: Boston Parks and Recreation Department Project Location: Back Bay Fens	Project Name: Muddy River Project Number: 1517-28449-SR.SEDSAMP.FIELD
Drilling Contractor: Geo-Tek	Surface Elevation (ft.):
Drilling Method/Rig: DTC/3" Split Spoon	Total Depth (ft.): 12
Drillers: Glen & Tom	Depth of Water (ft.): 1.5
Drilling Date: Start: 8/9/00 End: 8/9/00	Abandonment Method: Collapsed
Borehole Coordinates:	Field Screening Instrument: OVM w/ 10.2 PID
m z	Logged By: K. Dillaway

Sample Sample

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Stratum	XXXXXX	XXXXXX	******									Samples Samples Core Core	puno
Graphic											SNO	TYPE9 ger/Gra ditomia 5° Rock Noprobe dro Pun iii Spoor	Above Gre Surface
Blows per 6 Inches	VOH (12	000	4404	ω κυ κο <u>‡</u>							EVIATI	8.AMPLING TYPES: As Augustines Sample CS California Sample NX 1.5 Fock Core NX 2.1 Fock Core HP 14/000 Funds B 5pli Spoun T Short Sunds B 5pli Spoun W 8 Wash Sample	GS - AL
neminitari blei- gnibseA (mqq)	0.0	0.0	0.0	0.0							EXPLANATION OF ABBREVIATIONS	64 C B Z C I S S S	04
Elev. Depth (ft.)	0		NO.				5		135		TION O		
Sample Recovery (Inches)	24/8	24/8	24/24	24/24							PLANA	Auger Auger clary colary	Casing
Sample												DRILLING METHODS: HSA - Hand Auger SSA - Boild Stem Auger AR - Air Rolang OTT - Dual Tube Rolany FR - Form Rotary MR - Mud Rolany MR - Mud Rolany MR - Cabbe Tool Culablor CT - Cabbe Tool Culablor	Jetting Driving Driff Through Casing
Sample Type	SS	SS	SS	SS								PAR HAR HAR AR POTTA PAR HAR PAR PAR PAR PAR PAR PAR PAR PAR PAR P	DOTC
musus notangked notangked	0-2: Wel, very loose, black, medium to fine SAND, some organics.	2-4: Wet, very loose, black, medium to fine SAND, some organics. Slight odor.	4-6: Wet, very loose, black, medium to fine SAND, trace silt and organics.	6-8: As above.	B-10: Top 6": As above.	Bottom 12": Wet, loose, grey, fine SAND and SILT (native).	10-12": Wet, very loose, grey, fine SAND and SILT (native).	Bottom of Exploration at 12 feet BGS.			REMARKS	TYPES: California Sumple California Californi	Reviewed by: T. M. M. M. Date: 12/W/Q.
Graphic	5			<u> </u>							TIONS	NG TYPES Augerida California 1.5* Rock Gaoprobe Hydro Prock Spill Spool Shill Spool Shill Spool	Above Ground Surface
(bbm)	Push 11	Push	5.4 Push	Push	2 6	M M	0 -				BBREVIA	SAMPLIN CSS COS	AGS .
(ft.)	0	1	un	1	-		2	-	ro.	, , , , , , , , , , , , , , , , , , , 	ONOFA		
eingras Recovery (serbori)	24/8	24/20	24/22	24/22		24/18	24/20				EXPLANATION OF ABBREVIA	Auger Liger Dary	Cealing
ple											8	THODS: we Stem A Stem A I Auger olany Tube Re Tube Re Potany Rotany Rotany	ng Through

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UDDY, RIVER, BL MRN88F.GFJ CDM, MA.GDT 12/13/00

BOREHOLE LOG BBF-SED-33	Project Name: Muddy River Project Number: 1517-28449-SR.SEDSAMP.FIELD	Surface Elevation (ft.):	Total Depth (ft.): 8	Depth of Water (ft.): 0.8	Abandonment Method: Collapsed	Field Screening Instrument: OVM w/ 10.2 PID	Logged By: J J Callahan	Material Description	0-2" Wet, loose, black to grey, coarse to fine SAND and ORGANICS (decomposed leaves, sticks, grass), trace wire and glass.	2-4: Wet, loose, grey, coarse to fine SAND, some organics (sticks leaves Wigs), I'ace fine gravel.	4-6". Wet, loose, grey, coarse to fine SAND, some organics (peat and decomposed leave, sticks), little stilt.	6-6: Wet, medium dense, grey, SILT, little medium to fine sand, little organics (peat, stocks) (native).	Bottom of Exploration at 8 feet BGS.		REMARKS	
BBF	ent							Graphic Log Stratum Designation		*****	*****			 	 5	Id TYPE3: Algorithms Sample Algorithms Sample 1.5* Roat Core 2.1* Roat Core 2.1* Roat Core Place Core Sealt Spoon Place Core Place C
	Boston Parks and Recreation Department Location: Back Bay Fens		it Spoon		End: 7/27/00			(ppm) (ppm) (ppm) (ppm) (ppm) (ppm) (ppm)	0.0 4 0.0	0.0	0.0	0.0 8 8 41			EXPLANATION OF ABBREVIATIONS	SAMPLING TYPES: AS A AugerChab SI KX - 1.5 Rock Coor NX 2.1 Rock Coor NX 2.1 Rock Coor NY 3.1 Rock Coor SI 68 Self Spoor SI 7 Shelly Jube WS - West Sumple
Cambridge, MA 02139	and Recreik R Bay Fen	eo-Tek	TC/3" Spl					O Park (# (†) Inemunitani bleii	0	1 ,	lu lu		0.	 100	TION OF A	
Street A 02139	n Parks	actor: G	d/Rig: D	& Mike	Start: 7	rdinates		Sample Recovery (Inches)	24/8	24/8	24/24	24/24			KPLANA	HODS: w Stem Auger Stem Auger Auger Jitary Tube Rotary Rotary Rotary Rotary Tool Tool
CDM Street Cambridge, MA 02139		Drilling Contractor: Geo-Tek	Drilling Method/Rig: DTC/3" Split Spoon	Drillers: Dave & Mike	Drilling Date: Start: 7/27/00	Borehole Coordinates:	ш	Sample							0	NICI METHODS: - Hollow Stem Auger - Boild Stem Auger - Hand Auger - Hand Auger - Air Rotary - Forem Rotary - Forem Rotary - Aud Rotary - Gasthop Tool
80	Cilent: Project	Drill	Drill	P	Dril	Bor	z	Sample	SS	SS	SS	SS			1	PARA HARA

Sheet 1 of 1	74 AAA.	9				_				NICS.		rganics.		 						Date: 14/1/90
	GAEAOLE LO F-SED-34	Project Name: Muddy River Project Number: 1517-28449-SR.SEDSAMP.FIELD	Surface Elevation (ft.):	Total Depth (ft.): 8	Depth of Water (ft.):	Abandonment Method: Collapsed	Field Screening Instrument: OVM w/ 10.2 P!D	Logged By: K. Dillaway	Material Description	0-2: Wet, very loose, black, medium to fine SAND and ORGANICS.	2-4∵As above.	4-8': Top 12": As above. Bottom 8": Wet, very locse, grey, SILT and fine SAND, some organics.	6-8°: Wet, very loose, grey, fine SAND and SILT, trace organics (native).	Bottom of Exploration at 8 feet BGS.				REMARKS	1	Reviewed by: J. M. Chee Ile Date:
CKEE	<u> </u>	Boston Parks and Recreation Department Location: Back Bay Fens	ek	3° Split Spoon		End: 8/8/00			memunani bieli peripasa Redunayan berlang (mqq) seda wasa berlang seda seda seda seda seda seda seda seda	Push	Push -	WOR (18	NA 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2			1		EXPLANATION OF ABBREVIATIONS	SAMPLING TYPES: A8 Adeptition Sample G8 California Sample G8 California Sample G8 California Sample G8 E1 Float Core G8 E1 Float Core G9 E2 E1 Float Core G8 E2 E	Surface
CAMP DRESSER & MCKEE	50 Hampshire Street Cambridge, MA 02139	Client: Boston Parks and Recreat Project Location: Back Bay Fens	Drilling Contractor: Geo-Tek	Drilling Method/Rig: DTC/3* Split Spoon	Drillers: Glen & Tom	Drilling Date: Start: 8/8/00 End: 8/8/00	Borehole Coordinates:	Е	Sample Sample Sample (inches)	24/12 -	24/22	24/18 - 5	24/18	02	<u> </u>	1 2		EXPLANATION	NOG METHODS: Policious Stant Augest Bodious Steam Augest Manch Augest Manch Augest Manch Augest From Rotter Policious Rotter Manch Rotter Manch Rotter Manch Rotter Policious Rotter Manch Rotter Policious Rotter Manch Rotter Policious Rotter Pol	Drift Through Casing
	W C	P P	2	Dril	D	Dri	Bor	z	Sample	SS	SS	SS	SS				M_MACGOT 12/13/00		DRILLING HSA	DIC

Material Description	0-2: Wet, very loose, black, medium to fine SAND, little silt and organics.				8-10': Top 5'': As above. Bottom 13': Wet, medium dense, gray, coarse to line SAND and SILT, little gravel (feative).	O.S.			REMARKS	
0	0-2": Wet, very loose, black, me organics.	2-4". As above.	4-6'; As above.	6-8". As above.	8-10": Top 5": As above. Bottom 13": Wet, medium dense little gravel (native).	Bottom of Exploration at 10 feet BGS.				
muteu2 nottengised									pler pler	
Graphic Log									BREVIATIONS SAMPLING TYPES: CS Collininis Sample CS Collininis Sample NX 15 Red Core NX 15 Red Core NX 16 Red Geopole Red Geopole Red Geopole Red Geopole Red Geopole Red Red Geopole Red	Above Ground
Blows per	Push	Push	Push	Push	9 17				VIATIO	FR:
Field Instrument Reading (mpg)	NA A	A N	A N	A X	A N				ABBRES SAM SERVICE	AGS
Elex. Depth (ft.)	0		S		02		15	1	IO NO	
Sample Recovery (Inches)	24/18	24/20	24/12 -	24/24	24/18		1		EXPLANATION OF ABBREVIATIONS OS. SAMEUNOTYPE SAMEUNOTYP	
Sample									EXPLAND EXPLAND BRITHMEN SENTHORS: HIGH AND SENTH	Driving
Sample	SS	SS	SS	SS	SS				SSA SSA	

LOG

BOREHOLE BBF-SED-35

CAMP DRESSER & MCKEE

Project Number: 1517-28449-SR.SEDSAMP.FIELD

Surface Elevation (ft.): Total Depth (ft.): 10 Depth of Water (ft.):

Project Name: Muddy River

Cilent: Boston Parks and Recreation Department

Cambridge, MA 02139

Project Location: Back Bay Fens

Drilling Contractor: Geo-Tek

Field Screening Instrument: OVM w/ 10.2 PID

Abandonment Method: Collapsed

Drilling Date: Start: 8/8/00 End: 8/8/00

Borehole Coordinates:

Drilling Method/Rig: DTC/3" Spilt Spoon

Drillers: Glan & Tom

Sheet 1 of 1	Project Name: Muddy River Project Number: 1517-28449-SR.SEDSAMP.FIELD				ollapsed	It OVM W/ 10.2 PID		Meterial	0-2: Wet, very loose, black, medium to fine SAND and ORGANICS.			
BOREHOLE LOG BBF-SED-36	Project Name: Muddy River Project Number: 1517-284	Surface Elevation (ft.):	Total Depth (ft.): 8	Depth of Water (ft.): 2.5	Abandonment Method: Collapsed	Field Screening Instrument: OVM w/ 10.2 PID	Logged By: K. Dillaway	Designation	0-2: Wet, very losse, black, medi	2-4". As above.	4-6': As above.	6-8': Top 5": As above.
	nent							Graphic Log Stratum				***
	Departr		Loc		00/8			Blows per 6 Inches	VORV24X	VOR/24X	WOH 25	m =
盟	reation		Split Spo		ind: 8/8			Field Instrument Reading (mqq)	¥.	¥ Z	¥ Z	
& McK	ind Rec k Bay F	eo-Tek	TC/3"		8/00			Elev. Depth (ft.)	0		no.	
SSER Street	Parks a	ctor: G	VRIg: D	& Tom	Start: 8/	dinates:		Sample Recovery (inches)	24/1	24/24	24/22	
CAMP DRESSER & MCKEE CDM So Hampshire Street Cembridge, MA 02139	Client: Boston Parks and Recreation Department Project Location: Back Bay Fens	Drilling Contractor: Geo-Tek	Drilling Method/Rig: DTC/3" Split Spoon	Drillers: Glen & Tom	Drilling Date: Start: 8/8/00 End: 8/8/00	Borehole Coordinates:	ш	Sample				
2 8 8	Cilen	Drille	Drill	Drille	Drille	Bore	z	Sample	SS	SS	SS	T

BOREHOLE LOG BBF-SED-37	Project Name: Muddy River Project Number: 1517-28449-5R.SEDSAMP.FIELD	Surface Elevation (ft.):	Total Depth (ft.): 10	Depth of Water (ft.): 0.0	Abandonment Method: Collapsed	Field Screening Instrument: OVM w/ 10.2 PID	Logged By: JJ Callahan	Material Description	0-2: Wet, very loose, black, ORGANICS (sticks, decomposed leaves, twigs), little slit, trace glass and metal.	2.4°. No recovery.	4-8: Wet, very loose, black, organic, SILT, some sticks and peat.	6-8: Top 6*: Wet, very loose, grey, SILT. Bottom 12*: Wet loose black SILT little sticks and next foathus)	8-10; Wet, medium dense, grey, SILT (native). Stratified organic layer approximately 4" in length in center of spoon.		Bottom of Exploration at 10 feet BGS.			REMARKS	
<u>ന</u> പ്ര	ınt							Graphic Log Stratum Designation			******	****						SAMPLING TYPES: AS - Augenfanb Sampler CS - Callonia Sampler CS - Callonia Sampler NX - 1.5" Fock Core NX - 2.1" Rock Core NY - 2.1" Rock Core HP - Hydro Pluch HP - Hydro Pluch	alby Tube
	partme		_		8/00			Blows per 6 Inches Graphic	OH (24)	<u></u>		₩	4000	. 80				TATION TYP Augent Callon 1.5 Ro 2.1 Ro Gaopre Gaopre	Shalby Tube Wash Sampl
	reation De		pilt Spool		End: 7/2			field Instrument Peading (mqq)	0.0	NA WO	0.0	0.0	0:0					EXPLANATION OF ABBREVIATIONS 103. SAMPLING TYPE 104. SAMPLING SAMPLING	ST
	nd Rec	o-Tek	rc/3" s		28/00			Elev. Obpth (ft.)	0	1-1	lo l			10		10		ON OF	
Straet 02139	Parks a	ctor: Ge	VRIg: D	& Mike	Start: 7/	dinates:		Sample Recovery (Inches)	24/15	24/0	24/24 -	24/18	24/24				1 1	PLANAT	pulation
CEDIM 50 Hampshire Street Cambridge, MA 02139	Client: Boston Parks and Recreation Department Project Location: Back Bay Fens	Drilling Contractor: Geo-Tek	Drilling Method/Rig: DTC/3" Split Spoon	Drillers: Dave & Mike	Drilling Date: Start: 7/28/00 End: 7/28/00	Borehole Coordinates:	ш	Sample										EXPLAN G METHODS: Hotiow Stem Auger Solid Stem Auger Hand Auger Air Rotary Pous Tube Rotary Foun Rotary	Mud Rotary Reverse Circ Cable Tool
Sor	Cllen	Drillie	Drilli	Orille	Drilli	Bore	z	Samplin	SS	SS	SS	SS	SS					DRELLS HSA - SSA - HA AR - DTR -	SET SET

Bottom of Exploration at 8 feet BGS.

0

15

Reviewed by: J. M. C. Mufler Date: 12/11/00

REMARKS

EXPLANATION OF ABBREVIATIONS

MUDDY FRVER BL INFINERF GPJ CDM, MAGDT 12/13/00

Sheet 1 of 1		.FIELD					_			ome silt, trace		ome silt, trace	ace organics						
	BOREHOLE LOG BBF-SED-38	Project Name: Muddy River Project Number: 1517-28449-SR.SEDSAMP.FIELD	Surface Elevation (ft.):	Total Depth (ft.): 8	Depth of Water (ft.): 5.5	Abandonment Method: Collapsed	Field Screening Instrument: OVM w/ 10.2 PID	Logged By: K. Dillaway	Material Description	0-2: Wet, very loose, black/grey, coarse to fine SAND, some silt, trace organics and gravel.	2-4": As above.	4-6: Wet, very loose, black/grey, coarse to fine SAND, some silt, trace organics and gravel.	6-8: Wet, loses, grey, medium to fine SAND and SILT, trace organics and gravel (native). Strong organics odor.	Bottom of Exploration at 8 feet BGS.				REMARKS	
_	<u> </u>								mutsu2 notsngise0			*****							3 TYPES: ugarfarab Sample affitonia Sampler 5° Rock Core 1° Rock Core 1° Rock Core ydro Punch plit Spoon
		rtmen							Graphic Log		*****							- SNO	AuganGrab California St. 1.5" Rock C. 2.1" Rock C. 3eoproba Hydro Punck Split Spoon
		Depa		noc		2/00			Blows per 6 Inches	Push	4 64	2 (24")	WOR 2					EVIAT	AMPLING Carrier S211
EE		reation		split Spo		End: 8/			Field Instrument Reading (mqq)	0.5	NA A	A X	0.1			-		ABBRI	S A G R G R S S S S S S S S S S S S S S S S
& McK		nd Rec	Geo-Tek	TC/3"		00/4			Elex Obpth (ft.)	0		'n		9	1 - 1	20	1 1 1	O NO	
SSER	Street	Parks a		VRIg: D	& Tom	Start: 8/	dinates:		Sample Recovery (Inches)	24/18	24/4	24/3	24/22					EXPLANATION OF ABBREVIATIONS	203: Starn Auger ern Auger ger yy y e Rotany sisany any Circulation
CAMP DRESSER & MCKEE	Cambridge, MA 02139	Client: Boston Parks and Recreation Department Project Location: Back Bay Fens	Drilling Contractor:	Drilling Method/Rig: DTC/3" Split Spoon	Drillers: Glen & Tom	Drilling Date: Start: 8/7/00 End: 8/7/00	Borehole Coordinates:	ш	Sample									EXI	MG METHODS: Hollow Stam A Sold Stam A Hond Auger Air Rotary Dual Tube Ro Foam Rotary Mud Rotary Revers Circum
0	83	Prof	Drill	Drill	Driff	Drill	Bore	z	Sample	SS	SS	SS	SS						DRILLS HAR HAR AR DTR FR AG

Date: 12/1/60

Reviewed by: J. M. Muller

Sheet 1 of 1	SED-39	Project Name: Muddy River Project Number: 1517-28449-SR.SEDSAMP.FIELD	Surface Elevation (ft.):	Total Depth (ft.): 10	Depth of Water (ft.): 1.5	Abandonment Method: Collapsed	Field Screening Instrument: OVM w/ 10.2 PID	Logged By: K. Dillaway	Material Description	0-2": Wet, very loose, black, medium to fine SAND and ORGANICS.	2-4". As above.		46': Top 19": As above. Bottom 3": Wet, very loase, black, SILT. Strong petraleum odor.	6-6": Wet, very loose, black, SILT. Strong petroleum odor.	10: Top 8". As above.	Countries, reset, very louse, gray/ordwn, cit.;, some peat, mile organics (native).	Bottom of Exploration at 10 feet BGS.		BEMARKS	Davisuad but 1 M Che 16 0
В	BBF.	nent							Graphic bod Stratum Designation	· ·	~\ 		***		· · ·	5	[- U	SAAPHOTYPES, AS Augusticates Sample Conficient Sample Conficient Sample NX 12 Flock Core NX 21 Flock Core NX 22 Sall Spoon Of Flock NX 24 Sample Of Flock NX 25 Sample
		Departn		noc		00/			Blows per 6 Inches	Push	***	F	de la	SSSSSSSSSSSSSSSSSSSSSSSSSSSSSSSSSSSSSS	Push	X		 	- ACITAIN	MPLING TY Auger Califor 15. R 2.1° R 2.1° R 600P Hydro Split S Shelty Wash HER:
出		reation		Spllt Spo		End: 8/7			Fletd Instrument Reading (mqq)		0.6	A N	5.4	42	5	5.			 EXPLANATION OF ARBREVIATIONS	S S S S S S S S S S S S S S S S S S S
& McK		and Rec	eo-Tek	TC/3"		00/4			Elex Depth (ft.)	0			ın				2	 100	ONOL	
SSER	Street A 02139	Parks son: Bac	ctor: G	WRig: D	& Tom	Start: 8	dinates:		Sample Recovery (Inches)		24/12	24/22	24/22	2400	Calle Calle	24/20			PIANAI	Auger uger otary
CAMP DRESSER & MCKEE	50 Hampshire Street Cambridge, MA 02139	Client: Boston Parks and Recreation Department Project Location: Back Bay Fens	Drilling Contractor: Geo-Tek	Drilling Method/Rig: DTC/3* Split Spoon	Drillers: Glen & Tom	Drilling Date: Start: 8/7/00 End: 8/7/00	Borehole Coordinates:	m	Sample										EX	MAETHC Hollow S Solid Std Hand Au Air Rotal Dual Tut Foun Rewards Cabbe To Jetting Detailing Cath The Cabbe To Jetting Cath The Cath The Cabbe To Jetting Cath The Cabbe To Jetting Cath The
Ö	0,00	Ciler	Drill	Drill	Drilli	Drill	Bore	z	Sample		SS	SS	SS	v.	3	SS				ODDY RIVER BL MRNBBE GP.

CAMP DRESSER & McKEE CDM So Hampshire Street Cambridge, Mr 02139	BOREHOLE LOG BBF-SED-40
Client: Boston Parks and Recreation Department Project Location: Back Bay Fens	Project Name: Muddy Fliver Project Number: 1517-28449-SR.SEDSAMP.FIELD
Drilling Contractor: Geo-Tek	Surface Elevation (ft.):
Drilling Method/Rig: DTC/3" Split Spoon	Total Depth (ft.): 10
Drillers: Dave & Mike	Depth of Water (ft.): 0.8
Drilling Date: Start: 7/3/00 End: 7/3/00	Abandonment Method: Collapsed
Borehole Coordinates:	Field Screening Instrument: OVM w/ 10.2 PID
ш	Logged By: J J Caliahan

BOREHOLE LOG BBF-SED-40	Project Name: Muddy River Project Number: 1517-28449-SR.SEDSAMP.FIELD	Surface Elevation (ft.):	Total Depth (ft.): 10	Depth of Water (ft.): 0.8	Abandonment Method: Collapsed	Field Screening Instrument: OVM w/ 10.2 PID	Logged By: J J Callahan	Material Description	0-2: Wel, medium dense, grey, coarse to fine SAND, little organics (leaves, sticks), trace glass and fabric.	2-4; Wet, medium dense, grey, coerse to fine SAND, little fine gravel, trace organics (leaves sticks, root mass).	4-6: Wet, dense, grey, coarse to fine SAND, little silt, trace fine gravel.	6-8° Top 18° Wet, loose, grey, coarse to fine SAND and organic SILT, organic layer (.5°, root mass). Bottom 6° Wet, loose, grey, coarse to fine, SAND (native).	8-10". Wet, medium dense, gray, SILT, some organics and peat, trace fine sand (native).	Bottom of Exploration at 10 feet BGS.		REMARKS	Reviewed by: 12 J. M. Grucelle, Date: 12-11-6
88								mulade mulangiaed	*****	******	******	***				en en	NO TYPES: Applicable Simple California Bampler California Bampler California Bampler California Bampler 2.1° Read Core Processor Proces
	Boston Parks and Recreation Department		uq		00/			Blows per G Inches Graphic Log	n	B 0 1 17	so = 8 €	~ ~ ~ ~	80 80	9		EXPLANATION OF ABBREVIATIONS	£
Ш	reation C		Split Spor		End: 7/3/00			inemuntant bleiii Reading (mqq)	0.0	0.0	0.0	0.0	0.0			F ABBRE	ASSESSED A SECOND
& McK	and Rec	Geo-Tek	TC/3"					Elex. Depth (ft.)	0		ις.			10	 15	ONOIT	
SSER	Parks	ctor: G	VRIg: C	& Mike	Start: 7/3/00	dinates		Sample Recovery (Inches)	24/10	24/8	24/8	24/24	24/24			PLANA	203: Stem Auger am Auger oper or y y say Circuisten ough Ceaning
CAMP DRESSER & MCKEE CDM So Hampeline Street	Client: Boston Parks and Recreat	Drilling Contractor:	Drilling Method/Rig: DTC/3" Split Spoon	Drillers: Dave & Mike	Drilling Date:	Borehole Coordinates:	ш	Sample								۵	Hotow Stem A- Sould Stem A- Hand Auger Air Potany Dust Tube Rotary Mud Rotary Reverse Circo Jetting
0 0 88	Cilent:	Drd	Drill	Drill	Drill	Bore	z	elqma2 eqvT	SS	SS	SS	SS	SS				AD ANGER OF THE PARTY ADDISE

Reviewed by: 12 J. M. Gruentle, Date: 12-11-90

BOREHOLE BBF-SED-41	nartment Project Name: Muddy River Project Number: 1517-28449-SR.SEDSAMP.FIELD	Surface Elevation (ft.):	Total Depth (ft.): 8 Depth of Water (ft.): 5.5	Abandonment Method: Collapsed	Field Screening Instrument: OVM w/ 10.2 PID	Logged By: K. Dillaway	Graphic Log Stratum Designation	0-2: Top 9': Wel, very loose, dark grey, coarse to fine SAND, trace gravel. Sheen. Bottom 3': Wel, very loose, grey, fine GRAVEL, trace sand.	2-4: Wet, very loose, grey, coarse to fine SAND, some gravel	4-8*: Wet, very loose, grey, coarse to fine SAND, little gravel (native).	6-8: Wet, loose, grey, coarse to fine SAND and SILT (native)	Bottom of Exploration at 8 feet BGS.			ATIONS	MAI TYPES: Augustical Surple Augustical Surple Augustical Surple Augustical Surple Augustical Surple Augustical
	Client: Boston Parks and Recreation Department Project Location: Back Bay Fens		Drilling Method/Rig: DTC/3" Split Spoon Drillers: Glen & Tom	Drilling Date: Start: 8/4/00 End: 8/4/00			Field Instrument Reading (ppm) Hows per 6 Inches	Push 0.5	A	0.2	0.7 3				EXPLANATION OF ABBREVIATIONS	SAMPLIM COS - A COS -
CDM 50 Hampshire Street Cambridge, MA 02139	Client: Boston Parks and Recreat	Drilling Contractor: Geo-Tek	TC/3° S	4/00 E			Elev. Oepth (ft.)	0		lo lo			0	15	 TO NOT	
		1 6	Drilling Method/Rig: D Drillers: Glen & Tom	8	Borehole Coordinates:		(luches)	24/12	24/24	24/8	24/20				7 3	METHODS: lollow Stem Auger oled Stem Auger and Auger Le Rotary ual Tube Rotary Nud Rotary Nud Rotary Sevene Circulation sevene Circulation series Tool

CDW MARKET OF THE STREET OF TH	BOREHOLE LOG BBF-SED-42
Client: Boston Parks and Recreation Department Project Location: Back Bay Fens	Project Name: Muddy River Project Number: 1517-2849-SR.SEDSAMP,FIELD
Drilling Contractor: Geo-Tek	Surface Elevation (ft.):
Drilling Method/Rig: DTC/3" Split Spoon	Total Depth (ft.): 8
Drillers: Dave & Mike	Depth of Water (ft.): 0.0
Drilling Date: Start: 7/3/00 End: 7/3/00	Abandonment Method: Collapsed
Borehole Coordinates:	Fleid Screening instrument: OVM w/ 10.2 PID
ш	Logged By: JJ Callahan

Material Description	0-2": Wet, medium dense, black to grey, coarse to fine SAND and ORGANICS (note, sticks, leaves), trace glass, wood, and leather.	2-4": Wet, loose, dark grey, coarse to fine SAND, little fine gravel, trace organics (root mass, sticks, grass).	4-6". Top 6": Wet, very loose, grey, coarse to fine SAND. Bottom 18": Wet, very loose, grey, organic, SILT, some pest and shells (native).	6-8: Wet, loose, grey, fine, SAND and SILT, some shells.	Bottom of Exploration at 8 feet BGS.		REMARKS	Continued to The Continued
Designation	-							Sample mplar re re re
Stratum								
Stratum Bod mutsti2							SNS	PPES: endrab forms S Rock C Rock C Rock C Probe no Pund Spoon by Tube h Samp
Pod mutert2	Ho so so	0 4 0 0		E 2 E -			VIATIONS	Augustina San California San California San 1.15 Rock Core Gesprote Hydra Punch Hydra Punch Spill Spoan Shelby Tube Shelby Tube Shelby Tube Shelby Tube Shelby Tube Shelby Tube Shelby Tube Shelby Tube Shelby Tube Shelby Tube
6 Inches Graphic Log Log	WOH 9 8 8 8	0.0	0.0				FABBREVIATIONS	SAMPLING TYPES. A8 "Augedras Sample GR Callionia Sample RX T Flood Cole RX Callionia Sample RX Callionia Sample RX Callionia Sample RX T Flood Cole RX Callionia Sample RX SAMPL
field Instrument Meding (mqq) (mqq) Blows per 8 (mqn)	P		-	m n m -	0-	40 40	ON OF ABBREVIATIONS	SAMPLING TYPES. A8 Augenchan C8 Calloring C8 Calloring C9 Calloring
Heading (ppm) Blows per 6 Inches Log Log Log	0.0		0.0	m n m -	9	<u> </u>	PLANATION OF ABBREVIATIONS	Auger uger sary sary
(chroney) (chrone) (chro	0.0	0.0	9 0.0	0.0	2	40 40 - 1	EXPLANATION OF ABBREVIATIONS	SAMPLING WETHOOS: SAMPLING TYPES:

BOREHOLE LOG BBF-SED-43	Project Name: Muddy River Project Number: 1517-28449-SR.SEDSAMP.FIELD	Surface Elevation (ft.):	Total Depth (ft.): 10	Depth of Water (ft.): 1.0	Abandonment Method: Collapsed	Field Screening instrument: OVM w/ 10.2 PID	Logged By: JJ Callahan	Materiel Description	0-2": Wet, very loose, black, coarse to fine SAND and SILT, some organics (peet, root mass, leaves, sticks).	2-4". Wet, very loose, black to grey, coarse to fine SAND, little sit, little organics (eticla, leaves, noots), trace brick and concrete.	4-6": Wet, very loose, black and grey, organic, SILT.	6-8°: Top 12°: Wet, very loose, black, organic, fine SAND and SILT, little organic debrie (sticks, noot mass). Bottom 12°: Wet, very loose, grey, SILT (native).	8-10: Wet, koose, clayey SILT (native).	Bottom of Exploration at 10 ft BGS.		REMARKS	Reviewed by: J. P. C. P. L. Il-02
8 8	rtment							Graphic Log Stratum Designation								SNC	Hyd TYPE 8. Apperficials Sample Apperficials Sample 1.5° Rock Core 1.5° Rock Core Geoptobe of Phydro Punch Pell Spoon Pydro Punch Pell Spoon Wash Sample ** Above Ground Suffee
Ш	reation Depa		Split Spoon		End: 8/1/00			memurtani blei-i Reading (mqq) req swol8 serbri 3	0.0	0.0 1 (12")	0.0	0.0	0.0			EXPLANATION OF ABBREVIATIONS	SAMPUNG CS - CAI RX - 1-15 RX - 1-15 RX - 2-15 RY - PHO RY - SPH RY - SPH R
ER & McK	ks and Rec	Geo-Tek	: DTC/3"	ike	: 8/1/00	les:		(Inches)	0 - 4	7	λ. 	4		0	in in its second and	AATION OF	
CAMP DRESSER & MCKEE COMMISSION STREET Cambridge, MA 02139	Client: Boston Parks and Recreation Department Project Location: Back Bay Fens	Drilling Contractor: Geo-Tek	Drilling Method/Rig: DTC/3" Split Spoon	Drillers: Dave & Mike	Drilling Date: Start: 8/1/00 End: 8/1/00	Borehole Coordinates:	ш	Sample Sample Recovery	24/24	24/24	24/24	24/24	24/24			EXPLAN	WETHCORON Solid Stranger of the Stranger of th
S 9 8 8	Clien	Drilli	Drill	Drille	Drilling	Bore	z	Sample eqvī	SS	SS	SS	SS	SS				MUDDY RIVER BY MRNBBF GP.

BOREHOLE LOG 88F-SED-44	ent Project Name: Muddy River Project Number: 1517-28449-SR.SEDSAMP.FIELD	Surface Elevation (ft.):	Total Depth (ft.): 8	Depth of Water (ft.): 6.5	Abendonment Method: Collapsed	Field Screening Instrument: OVM w/ 10.2 PID	Logged By: K. Dillaway
CAMP DRESSER & MCKEE CDM So Hampshire Street Cambridge, MA 02139	Client: Boston Parks and Recreation Department Project Location: Back Bay Fens	Drilling Contractor: Geo-Tek	Drilling Method/Rig: DTC/3" Split Spoon	Drillers: Glen & Tom	Drilling Date: Start: 8/4/00 End: 8/4/00	Borehole Coordinates:	w z

LOG

BOREHOLE BBF-SED-45

CAMP DRESSER & MCKEE

Project Number: 1517-28449-SR.SEDSAMP.FIELD

Surface Elevation (ft.): Total Depth (ft.): 10

Project Name: Muddy River

Client: Boston Parks and Recreation Department

50 Hampshire Street Cambridge, MA 02139

Project Location: Back Bay Fens

Drilling Contractor: Geo-Tek

Field Screening instrument: OVM w/ 10.2 PID

Logged By: JJ Callahan

Abandonment Method: Collapsed

Drilling Date: Start: 8/1/00 End: 8/1/00

Borehole Coordinates:

ш Z

SS

Sample

Sample

SS

25

SS

Drilling Method/Rig: DTC/3" Split Spoon

Drillers: Dave & Mike

Depth of Water (ft.): 0.0

	0-2: Wet, very loose, grey trace fine sand and glass.	2-4": Wet, very loose, brov	4-6': Top 6': Wet, loose, b Bottom 18": Wet, loose, bl fine gravel and organics.	6-8". Wet, very loose, grey	8-10: Wet, loose, grey to	Bottom of Exploration at 1				Reviewed by:
mutert2 notengised									Sample core	pur
Graphic Log									ATIONS AND TYPES: Augustians Samples Caulionia Samples Caulionia Samples 2.1 Flood Core 2.1 Flood Core Hydro Purch Shaft Spoon Shaft Spoon Wann Samples	Above Ground Surface
Blows per	1(18")	1(18")	000-	0 - 0 0	ω 4 10 10				BREVIATIONS SAMPLING TYPES: A.S. Augendries S. Calinomia S. E.X. C. Calinomia S. E.X. C. C	38 · A
Inemuniani bleii gaibseA (mqq)	0.0	0:0	0:0	0.0	0.0				ABBR WAGESTERN	> =
Elex. Depth (ft.)	0		ın		i į	2	र्च		O NOIL	
Sample Recovery (Inches)	24/22	24/1	24/24	24/24	24/24				EXPLANATION OF ABBREVIATIONS SAMPLING TYPES SIMPLING TYPES SIMPLIN	h Caeing
Sample									EXPLAND METHODS: Hand A Helder Silm Auget Hand Auget Hand Auget Hand Auget Hand Auget Hand Auget Hand Hand Hand Hand Hand Hand Hand Hand	Driff Through Caeing
elqme2 eqvT	SS	SS	SS	SS	SS				CASSASSES OF A STATE O	orto
Designation	0-2: Wet, very loace, black, medium to fine SAND, some organics, trace silt.	2-4: As above.	4-6". Top 14". As above. Bottom 6": PEAT.	6-8". Top 11". Wet, very loose, black, medium to fine SAND, some organics. Bottom 11": PEAT, some shells, trace set (netive).	Bottom of Exploration at 8 feet BGS.				HEMARKS now.	Reviewed by: J. M. C. M. C. Il. Onto: 12-11-00
Log Stratum	*****	******							TTONS RG TYPES: RG TYPES: RG TYPES: RG TYPES: Sample Sample Sample Core Sample Core Sample Core Sample Core Sample Core Mail Special Special Mail Sample	a Ground
Blows per 6 Inches Graphic	F8	**************************************	**************************************	HOW HOW					PAFEVIATIONS BAMPLING TYPES A S. Augendrab S California Sa EX. 2.1 Rock CO Q P. California Sa R 2.1 Rock CO Q P. California Sa Sa Salia Spoon W S. Wash Supply Tube W S. Wash Supply Tube	- Above
fnemutrani bleiii gnibseA (mqq)	P P	A N	p.0	W. 4.0					ABBRE SAM SAM SAM SAM SAM SAM SAM SAM SAM SAM	AGS
Depth (ft.)	0	1 7	lo lo			9	15	1 1 1	TO NO	
Sample Recovery (inches)	24/18	24/20	24/20	24/22			1 1		EXPLANATION OF ABBREVIATIONS DOS. AMPLIANT THE MARKET THE MARK	jh Cesting
e 2									C C C C C C C C C C C C C C C C C C C	Jon Con

BE GP1 CDM_MA.GDT 12/13/00

Material Description	0-2: Wet, very loose, grey and brown, organic, SILT (peat, root mass), trace fine sand and glass.	2-4": Wet, very loose, brown, organic, SILT, some peat.	4-6: Top 6": Wet, loose, black, organic, SILT (muck). Bottom 18": Wet, loose, black, coarse to fine SAND and SILT, trace fine gravel and organics.	6-8": Wet, vary loose, grey to dark grey, SILT, trace shells (native).	8-10; Wet, loose, grey to dark grey, SILT (native).	Bottom of Exploration at 10 fast BQS.	REMARKS	Reviewed by: J. M. C. Mus. 18-11-60
mutst2 notisngised			<u> </u>					ampie e e e e
Graphic							SNC	Livid TYPES: Augenflatab Sample Callifornia Sampler Callifornia Sampler 15. Rock Core Geoprobe Hydror Purch Shelliy Jube Wash Sample R. Wash Sample R. Wash Sample Shelliy Surface
Blows per 6 Inches	1(18")	1(18°)	m m m =	N - N N	w 4 ∞ Φ		EVIATIC	E ,
emuntani bleii gaibsefi (mqq)	0.0	0:0	0.0	0:0	0.0		ABBR	SAM BEX BEX BEX BEX BEX BEX BEX BEX BEX BEX
Elev. Depth (ft.)	0		ın			01	ONOL	
Sample Recovery (Inches)	24/22	24/1	24/24	24/24	24/24		EXPLANATION OF ABBREVIATIONS	Auger Auger lotary y culation
Sample							X	PRELING METHODS: HEA Hollow Stem Augur HAA Hollow Stem Augur HAA Hard Augur HAR Feern Roles Potenty HAR Hard Bolany HAR HAA HARD Roles HAR Feern Roles Potenty HAR HARD Roles HARD Roles HARD Roles HARD Roles HA
Type	SS	SS	SS	SS	SS			DARLH HEA HAA HAA HAA HAA HAA HAA HAA CT CT CT CT CT CT CT CT CT CT CT CT CT

COMPANIES COMPANIES Cambridge, MA 02139	BOREHOLE LOG BBF-SED-46
Client: Boston Parks and Recreation Department Project Location: Back Bay Fens	Project Name: Muddy River Project Number: 1517-28449-SR.SEDSAMP.FIELD
Driffing Contractor: Geo-Tek	Surface Elevation (ft.):
Drilling Method/Rig: DTC/3" Split Spoon	Total Depth (#L): 8
Drillers: Glen & Tom	Depth of Water (ft.): 6.0
Drilling Date: Start: 8/3/00 End: 8/3/00	Abandonment Method: Collapsed
Borehole Coordinates:	Field Screening Instrument: OVM w/ 10.2 PID
w z	Logged By: K. Dillaway

Client: Boston Parks and Recreation Department Project Location: Back Bay Fens	בספת המוני במני במוני	Drilling Contractor: Geo-Tek	Drilling Method/Rig: DTC/3" Split Spoon	Drillers: Glen & Tom	Drilling Date: Start: 8/3/00 End: 8/3/00	Borehole Coordinates:	ш	North Participation of the Control o	24/20 - 3.2	24/22 NA	24/22 - 5 - 0.8		24/24 - 0.2	10	15	 EXPLANATION OF ABBREVIATIONS	MATTOOOS BANKILLIN BANKILL
Department			no		00/			Blows per 6 Inches Graphic Log Stratum Stratum Designation	Push	hush	Push (1)	NOH TO HOM	9850			MATIONS	BAMPLING TYPES: AS A reporting Sample CS California Sample X 15 Flock Core NX 2.1 Flock Core NX 2.1 Flock Core HP Flyck Core HP
Project Name: Muddy River Project Number: 1517-28449-SR:SEDSAMP.FIELD	rioject Number: 1317-26449-5H.SEDSAMP.FIELD	Surface Elevation (ft.):	Total Depth (ft.): 8	Depth of Water (ft.): 6.0	Abandonment Method: Collapsed	Field Screening Instrument: OVM w/ 10.2 PID	Logged By: K. Dillaway	Material Description	0.2: Wet, very loose, black, medium to fine SAND, some organics, trace silt.	2-4", As above.	4-6: Top 14": As above. Botton 8": PEAT (native).	6-8: Top 12: PEAT.	Bottom 12": Wet, very loose, grey, fine SAND and SILT, some shell fragments (natve). Strong organic odor.	Bottom of Exploration at 8 feet BGS.		REMARKS	

Sheet 1 of 1) 1	Project Name: Muddy River Project Number: 1517-28449-SR.SEDSAMP.FIELD	Surface Elevation (ft.):	Total Depth (ft.): 8	Depth of Water (ft.): 2.5	Abandonment Method: Collapsed	Field Screening Instrument: OVM w/ 10.2 PID	Logged By: K. Dillaway	Material Description	0-2": Wet, very loose, black, medium to fine SAND, some organics.		T. Sabove.	6-8:: Wet, very loose, brown, fine SAND and SILT, some peat (native).	Bottom of Exploration at 8 feet BGS.		RFMARKS	
A C A	3F-SED-4	Project N Project N	Surface E	Total Dep	Depth of	Abandonr	Field Scre	Logged B		0-2': Wet, very	2-4". As above.	4-6': Top 18": As above. Bottom 2": PEAT.	8-8": Wet, very	Bottom of Explo			
		+							Log mutrat2 Designation	XXXX	xxxxxxx	·×××××					YPES: Information Sample Acid Core Rock Core Rock Core Rock Of Separation of Space Information of Space Information of Sample Information of Sample
		artmer							Graphic		******	*****					NG TYPES: Auger/Grab Sample 1.5: Root Core 2.1: Root Core deprobe Hydro Planch Spill Spoon Shelly Tube Wash Sample About Grand
		Depa		noo		3/00			Blows per 6 Inches	Push	Push	Push	WOH			MATI	SAMPLING AS Au CS
Œ		creation		Split Sp		End: 8/			Field Instrument Reading (mpq)	4.1	¥ Z	2.5	0.1			ABBRE	ASSET STANDERS OF
& Mc		and Re k Bay	eo-Tek	TC/3		00/8/			Elex. Oepth (ft.)	0		w	1	10	in in	ONO	
SSER	Street A 02139	Parks on: Bac	ctor: G	d/Rig: D	& Tom	Start: 8	dinates:		Sample Recovery (inches)	24/18	24/20	24/20	24/20			EXPLANATION OF ABBREVIATIONS	Auger uger Itary
CAMP DRESSER & MCKEE	50 Hampshire Street Cambridge, MA 02139	Client: Boston Parks and Recreation Department Project Location: Back Bay Fens	Drilling Contractor: Geo-Tek	Drilling Method/Rig: DTC/3" Split Spoon	Drillers: Glen & Tom	Drilling Date: Start: 8/3/00 End: 8/3/00	Borehole Coordinates:	ш	Sample							EX	METHC olid Sta and Au in Rotar in Rotar oan Tub oud Tub oud Tub oud Tub oud Tub oud Tub oud Tub oud Tub oud Tub oud For oud Fo
	80	Clie	Drill	D'-	Ď	Drill	Bor	z	Sample	SS	SS	SS	SS				DARLING HSA . H HAA . H HAA . H HAA . H HAA . H DUTR . D CCT . CC

CAMP DRESSER & MCKEE CDM 50 Hampstilre Street Cambridge, MA 02139	BOREHOLE LOG BBF-SED-48
Client: Boston Parks and Recreation Department Project Location: Back Bay Fens	Project Name: Muddy River Project Number: 1517-28449-SR.SEDSAMP.FIELD
Drilling Contractor: Geo-Tek	Surface Elevation (ft.):
Drilling Method/Rig: DTC/3* Split Spoon	Total Depth (ft.): 8
Drillers: Dave & Mike	Depth of Water (ft.): 0.0
Drilling Date: Start: 8/1/00 End: 8/1/00	Abandonment Method: Collapsed
Borehole Coordinates:	Field Screening Instrument: OVM w/ 10,2 PID
ш	Logged By: JJ Callahan

Cilent:	Boston	Parks	and Re	Client: Boston Parks and Recreation Department	Depart	ment		Project Name: Muddy River
Project	Project Location:		Back Bay Fens	Fens				Project Number: 1517-28449-SR.SEDSAMP.FIELD
Drilling	Drilling Contractor:	ctor: G	Geo-Tek					Surface Elevation (ft.):
Drilling	Method	J/Rig: C	DTC/3	Drilling Method/Rig: DTC/3* Split Spoon	non			Total Depth (ft.): 8
Drillers	Drillers: Dave & Mike	& Mike						Depth of Water (ft.): 0.0
Drilling	Drilling Date: Start: 8/1/00	Start: 8		End: 8/1/00	00/1			Abandonment Method: Collapsed
Boreho	Borehole Coordinates:	dinates	.,					Field Screening Instrument: OVM w/ 10,2 PID
Z Z								Logged By: JJ Callahan
edy1	Sample	Sample Recovery (Inches)	Elev. Depth (ft.)	friemuntani bleiii gnibaefi (mqq)	Blows per 6 Inches	Graphic	mutert2 notisegised	Material Description
SS		24/22	0	0.0	WOR			0-2: Wet, very loase, black, ORGANIC SILT. Slight petroleum odor.
SS		24/12		0.0	МОН			2-4: Wet, very loose, black, ORGANIC MUCK, some silt, organic breakdown present.
SS		24/24	so	0.0	1 (12")			4-6": Top 12": Wet, very loose, grey, ORGANIC SILT. Bottom 12": Wet, very loose, grey, SILT, some shells and peat
SS		24/24		0.0				(native). 6-8: Wet, very loose, grey, SILT, some peat and shells (native).
								Bottom of Exploration at 8 tt BGS.
			9					
			. ,					
			10					
			1					
	۵	CPLANA	- NOIT	EXPLANATION OF ABBREVIATIONS	EVIATI	SNO		REMARKS
DARLING HEA - H HA - H H HA - H H HA - H HA - H HA - H H H H HA - H H H H H H H H H H H H H H H H H H H	METHO tollow 5 Solid Stand Au Ur Rotan Dual Tuta Toem Re Aud Tuta Toem Re Aud Tuta Toem Re Aud Tuta Toem Re Toem Re To	THODS: ow Stem Auger of Stem Auger of Auger stem and Auger of Auger I Tube Rotary i Tube Rotary I Rotary one Circutation era Circutation		3408291%535	SAMPLING TYPES: All Applicate Surrole CS California Surrole XX 15 Flock Cone XX 17 Flock Cone QP Geoprobe HP Hydro Punch SS Splat Spoun ST Shall Spoun WR WR Wath Sample	TYPES: Bendrab Ilfomia Si Rock C Oprobe dro Punci Ili Spoon ath Samp	Sampler ore ore	
	Driving Drill Through Cesing	th Ceaning		Ac	AGS . At	Above Ground Surface	Pur	Reviewed by: J. M. C. Medle Date: 12-11-90

Sheet SED-49 Project Name: Muddy River Project Number: 1517-28449-SR, SEDSAMP.FIELD Surface Elevation (ft.): Total Depth (ft.): 10 Depth of Water (ft.): Abandonment Method: Collapsed Fleid Screening instrument: OVM w/ 10.2 PID Logged By: JLG Material Description Adv. very loose, black, SILT, some organics. 2-4: Wet, very loose, black, SILT, some organics. Bottom 6: Wet very loose, grey, SILT (native). 6-6: Top 16: Wet, very loose, grey, SILT (native). Bottom 15: Wet, very loose, grey, SILT (native).	Bottom of Exploration at 10 feet BGS. Reviewed by: T. C. A. C. M. (M. (M. (M.))
BORE-SED-49 BBF-SED-49 Project Num Surface Elev Total Depth of Wa Abandonme Field Screen Logged By: Logged By: 2-4: Wet, very lo 2-4: Wet, very lo 6-8: Top 16: Wet Bottom 15: Wet	Bottom of Bottom
muleti2	TONS AG TYPES: A TYPES:
e polycerb polycerb	ATONIS AND TYPES: A Additional Supplies of the Angel Special S
Blows per 6 findhes	RECALL TO A C A C A C A C A C A C A C A C A C A
The series of the memurate bleft of the series of the seri	日日日日日日日日日日日日日日日日日日日日日日日日日日日日日日日日日日日日日日
nd Rec (Bay F (C) 2/00 I (ft.)	0- 151 NO
SSER 8 SISTER 8 COLOURS at NOTICE 39 COLOUR SISTER AT NOTICE 30 MIKE COLOUR SISTER BY COLOUR SISTER BY COLOUR SISTER BY COLOUR SISTER S	EXPLANATION OF ABBREVIATIONS EXPLANATION OF ABBREVIATIONS SAMPLING TYPE C Stem Auger C Stem Auger C Stem Auger C Stem C Stem Auger C Stem C St
CAMP DRESSER & McKEE So Hampshire Street Cantoridge, M.A.02139 Client: Boston Parks and Recreation Department Project Location: Back Bay Fens Drilling Contractor: Geo-Tek Drilling MethodRig: DTC/3* Split Spoon Drilling Date: Start: 8/2/00 End: 8/2/00 Borehole Coordinates: N E SS	EXPLAN EXPLAN EXPLAN HIGH METHODS: HARD Algorithm August Gold State August Gold State August Gold State August Fare Rollow Fare Fare Rollow Fare Fare Rollow Fare Fare Fare Fare Fare Rollow Fare
S S S S S S S S S S S S S S S S S S S	SS ### ### ###########################

C G Sheet 1 of 1	49-SR.SEDSAMP.FIELD				absed	OVM w/ 10.2 PID		rital ption	DOTS. ORGANIC MUCK.	ANIC MUCK. SAND and GRAVEL	rse SAND, some small gravel.	native).		 	
BOREHOLE BBF-SED-50	Project Name: Muddy River Project Number: 1517-28449-SR.SEDSAMP.FIELD	Surface Elevation (ft.):	Total Depth (ft.): 8	Depth of Water (ft.):	Abandonment Method: Collapsed	Field Screening Instrument: OVM w/ 10.2 PID	Logged By: JLG	Material Description	0-2: Top 8": Phragmite degraded ROOTS. Bottom 12": Wet, very loose, black, ORGANIC MUCK.	2-4: Top 4: Wet, loose, black, ORGANIC MUCK. Bottom 5: Wet, loose, black, coarse SAND and GRAVEI.	4-6". Top 14": Wet, loose, black, coarse SAND, some small gravel.	Bottom 10": Wet, toose, grey, SILT (native).	6-8": Wet, loose, grey, SIL.T (native),	Bottom of Exploration at 6 feet BGS.	
	on Department		nood		8/2/00			(ppm) Blows per Graphic Log Stratum Designation	1(18")	w 10 m 10	2 00 00	0.4	4 10 4 10		
S WCKEE	Boston Parks and Recreation Department Location: Back Bay Fens	Geo-Tek	Drilling Method/Rig: DTC/3" Split Spoon	8/	Drilling Date: Start: 8/2/00 End: 8/2/00	100 miles		(E)	0	 	 	10		<u> 0</u>	s ₂
CAMP DRESSER & MCKEE CDD So Hampahre Street Cambridge, MA 02139	Client: Boston Parks and Recreat Project Location: Back Bay Fens	Drilling Contractor:	ng Method/Rig:	Orillers: Matt & Dave	ng Date: Start:	Borehole Coordinates:	w	Number Sample Recovery	24/18	24/9		24/24	24/20		
3 9 88	Cilent: Project	Drill	Drill	Drille	Drill	Bore	z	Sample	SS	SS		SS	SS		

BOREHO BBF-SED-51	artment Project Name: Muddy River Project Number: 1517-28449-SR.SEDSAMP.FIELD	Surface Elevation (ft.):	Total Depth (ft.): 6	Abandonment Method: Collansed	Fleid Screening Instrument: OVM w/ 10.2 PID	Logged By: JLG	Saphic Log Summ Designation	0-2": Welt, very loose, black, ORGANIC MUCK (phragmile matter).	2-4: Top 3: Wet, very loose, grey, fine SAND and GRAVE!		4-0: Wat, loose, grey, SILT, some shells (native)	Bottom of Exploration at 8 feet BGS.					ONS	MNO TYPES. Strope California Sample La Fred Core Report Core Repor
	Boston Parks and Recreation Department Location: Back Bay Fens	-Tek	Drilling Method/Rig: DTC/3" Split Spoon Drillers: Matt & Dava	00 End: 8/2/00			The manufacture of the manufactu	MOM	0	- 6	440		ļo.	1	lip	1 1 1	EXPLANATION OF ABBREVIATIONS	8 AAMPLING C C B C C C C C C C C C C C C C C C C C
CDM 50 Hampshire Street Cambridge, MA 02139	Client: Boston Parks and Recreat	Drilling Contractor: Geo-Tek	Drilling Method/Rig: DTC Drillers: Matt & Dava	Drilling Date: Start: 8/2/00	Borehole Coordinates:		Sample Recovery (Inches)	24/20 -	24/24		24/24		-		1.5		LANATION	DS: tem Auger m Auger ger y er e Rotary ally my circulation of

Reviewed by: J. M. C. Mullen Date: 12-11-00

3.6.AMPLVID TYPES.
A A CALLAMENTO B SERVICE
BX CALLOWING BENEVING
BX 15° Flocid Cone
WX 2.1° Flocid Cone
GP Geoprope
GP Flocid Cone
S S Spill Spoon
WS Wash Sample
MS Wash Sample

REMARKS

EXPLANATION OF ABBREVIATIONS

BOREHOLE LOG BBF-SED-52	Project Name: Muddy River Project Number: 1517-28449-SR.SEDSAMP.FIELD	Surface Elevation (ft.):	Total Depth (ft.): 8	Depth of Water (ft.): 3.5	Abandonment Method: Collapsed	Field Screening Instrument: OVM w/ 10.2 PID	Logged By: K. Dillaway	Material Description
B O I BBF-S		67	-		4		7	Stratum Designation
	tmeni							Graphic Log
	Depar		noon		3/00			Blows per 6 Inches
EE	creation		Split Sp		End: 8			fremuntant bleid gaibseA (mqq)
& Mck	and Rec	80-Tek	DTC/3"		00/6/1			Elev. Depth (ft.)
Street	Parks on: Bac	ctor: G	VRIg: [& Tom	Start: 8	dinates		Sample Recovery (inches)
CAMP DRESSER & MCKEE CDM So Hampathie Street Cembridge, MA 02139	Client: Boston Parks and Recreation Department Project Location: Back Bay Fens	Drilling Contractor: Geo-Tek	Drilling Method/Rig: DTC/3" Split Spoon	Drillers: Glen & Tom	Drilling Date: Start: 8/3/00 End: 8/3/00	Borehole Coordinates:	ш	Sample
0 80	Proj	Drill	Drill	1	D.	Bon	z	Sample Squ T

LOG

BOREHOLE BBF-SED-53

CAMP DRESSER & MCKEE

Project Number: 1517-28449-SR.SEDSAMP.FIELD

Surface Elevation (ft.): Total Depth (ft.): 8

Project Name: Muddy River

Cilent: Boston Parks and Recreation Department

CDP So Hampshire Street Cambridge, MA 02139

Project Location: Back Bay Fens

Drilling Contractor: Geo-Tek

Field Screening Instrument: OVM w/ 10.2 PID

Logged By: K. Dillaway

Abandonment Method: Collapsed

Drilling Date: Start: 8/3/00 End: 8/3/00

Borehole Coordinates:

Drilling Method/Rig: DTC/3* Split Spoon

Drillers: Glen & Tom

Depth of Water (ft.): 2.0

Material Description	0-2: Wet, very loose, black, medium to fine SAND, some organics.	2-4; As above.	4-6". Wet, yery loose, black, coarse to fine SAND, some silt and organics. Petroleum odor.	6-8: Wet, medium dense, gray, coarse to fine SAND, trace gravel (native).	Bottom of Exploration at 8 feet BGS	REMARKS REMARKS Reviewed by: J. M. C. M. L. [L. C. Date: 13-11-60]
Stratum notiangleseO						ATIONS ING TYPES: Semple Agenticine Semple Operation Semple
Graphic Log						TIONS Angerdants Services Angerdants Services Angerdants Services Angerdants Services Angerdants
Blows per 6 Inches	Push	Push	WOM	0 = 8		SAMPLIATIONS SAMPLIATIONS SAMPLIATIONS CS AGGREGATION CS AGGREGATION CS AGGREGATION CS CS AGGREGATION CS C
finemintship bleif gnibseft (mqq)	12.4	¥ Z	8.8	2.6		A S S S S S S S S S S S S S S S S S S S
Elev. Depth (ft.)	0		ro.		5	O NOL
Sample Recovery (Inches)	24/18	24/24	24/10	24/12		EXPLANATION OF ABBREVIATIONS SAMPLING TYPES (In August A
, ,						EXPLANA EXPLANA BRILING METHODS: HEAR Helion Subman Auger HEAR HEAR HEAR HEAR HEAR HEAR HEAR HEAR
			1			DORLLIN HBA SSA AAR AAR AAR AAR AAR AAR AAR AAR AA
Sample Number	SS	SS	SS	SS		21%1424240402

6-8" Wet, medium dense, grey, coarse to fine SAND, trace fine gravel (native).

Bottom of Exploration at 8 feet BGS.

10

15

4-6". Top 6". As above.
Bottom 16": Wet, very loose, black, SAND and SILT, trace clay and organics.

7.2

24/22

SS

1.2

24/20

88

0-2: Wet, very loose, black, medium to fine SAND, some organics.

2-4": As above.

OR (12')

ž

24/20

SS

5.9

24/22

SS

Reviewed by: J. M. M. (16 Date: 12-11-00

REMARKS

EXPLANATION OF ABBREVIATIONS

DOY_RIVER_BL MANSSE.GPJ COM_MA.GDT 12/13/00

BOREHOLE LOG BBF-SED-54	Project Name: Muddy River Project Number: 1517-2849-SR.SEDSAMP.FIELD	Surface Elevation (ft.):	Total Depth (ft.): 10	Depth of Water (ft.):	Abandonment Method: Collapsed	Field Screening Instrument: OVM w/ 10.2 PID	Logged By: K. Dillaway	Material Description	0-2: Wet, very losse, black, medium to fine SAND, trace gravel and organics. Petroleum odor.	2-4'; As above.	4-6: As above.		G-6'; As above.	8-10°: Top 5°: Wet, medium dense, black, fine SAND, some silt. Organic 15°: Wet, medium dense, grey, coarse to fine SAND, trace fine Organic (febbe).	Bottom of Exploration at 10 feet BGS.	
B O BBF-								Stratum Designation	0 0	-5			<u> </u>	(8	
	tment							Graphic Log				***				
	Depar		noo		2/00			Blows per 6 Inches	Push	Push	WOH		Push	10 to 10 to		
1	reation		Split Sp		End: 8/			field Instrument Meading (mqq)	¥ Z	¥.	¥.		¥ N	A N		
	nd Rec	90-Tek	TC/3"		2/00			Elev. Oepth (ft.)	0	1	1	0		2	1	2
Street V02139	Parks a	ctor: G	VRIg: D	& Tom	Start: 8/	dinates:		Sample Recovery (inches)	24/22	24/24	24/24		24/20 -	24/20		
Company Street Cambridge, MA 02139	Client: Boston Parks and Recreation Department Project Location: Back Bay Fens	Drilling Contractor: Geo-Tek	Drilling Method/Rig: DTC/3" Split Spoon	Drillers: Glen & Tom	Drilling Date: Start: 8/2/00 End: 8/2/00	Borehole Coordinates:	ш	Sample								
જ જ હૈ	Ciles	Drill	Drill	Drill	Drill	Bore	z	Sample	SS	SS	SS		SS	SS		

LOG

BOREHOLE BBF-SED-55

CAMP DRESSER & MCKEE

Project Name: Muddy River
Project Number: 1517-28449-SR.SEDSAMP.FIELD

Client: Boston Parks and Recreation Department Project Location: Back Bay Fens

50 Hampshire Street Cambridge, MA 02139 Drilling Contractor: Geo-Tek

Surface Elevation (ft.):

Total Depth of Water (ft.): 10 Depth of Water (ft.): 3.5 Abandonment Method: Collapsed Field Screening Instrument: OVM w/ 10.2 PID Logged By: K. Dillaway Material Depth of Water (ft.): 3.5 Abandonment Method: Collapsed Field Screening Instrument: OVM w/ 10.2 PID Logged By: K. Dillaway Material Depth of Water (ft.): 3.5 Abandonment Method: Collapsed Field Screening Instrument: OVM w/ 10.2 PID Logged By: K. Dillaway Material Depth of Water (ft.): 3.5 Abandonment Method: Collapsed A-6: As above. A-6: As above. A-6: As above. A-6: As above. B-10: Wet, medium dense, black, medium to fine SAND, some gravel, craftle of the BGS.
10 10 10 10 10 10 10 10
Drilling Method/Rig.

Reviewed by: J. M. Muller Date: 12.11-00

REMARKS

EXPLANATION OF ABBREVIATIONS

MUDDY_RIVER_BL MRNBBF.GPJ CDM_MA.GDT 12/13/00

BOREHOLE LOG BBF-SED-56	Project Name: Muddy River Project Number: 1517-28449-SR.SEDSAMP.FIELD	Surface Elevation (ft.):	Total Depth (ft.): 6	Depth of Water (ft.):	Abandonment Method: Collapsed	Field Screening Instrument: OVM w/ 10.2 PID	Logged By: K. Dillaway	Material Description	0-2': Wei, medium dense, black, coarse to fine SAND, some gravel and organics. Petroleum odor.	2-4: Wet, medium dense, grey, coarse to fine SAND, frace gravel (native).	(-d: As above.	Bottom of Exploration at 6 feet BGS.			REMARKS	- T MC 24 1/2 2-11 6
B O BBF-8								Stratum notisngised							Sample Sempler Sore	· pund
	tment							Graphic							ATHONS Auges/drab 8: Auges/drab 8: California Sen 1.5° Rock Cor Gaoprobe Hydro Punch Shality Tube Wash Sample	Above Groun
	Depar		noc		2/00			Blows per 6 Inches	w 4 ≥ 5	00 00 00 4	10 ~ 00 ~				HEVIAT SAMPLINK AS AS CS CC CS CC BX CC BX CC CS CS CC CS CS CC CS CS CC CS CS C	AGS - 1
	reation		split Sp		End: 8/2/00			Field Instrument Preading (mqq)	NA A	MA	¥ Z				A005612222	0 4
	nd Rec	90-Tek	TC/3"					Elex. Depth (ft.)	0		ls.		9	100	ONOL	
Street 02139	Parks a	tor: Ge	/Rig: D	Tom Y	start: 8/	dinates:		Sample Recovery (inches)	24/10	24/12	24/12				EXPLANATION OF ABBREVIATIONS OBS. SAMPHORY TYEE OBS. OBS	
GDM 50 Hampshire Street Cambridge, MA 02139	Clent: Boston Parks and Recreation Department Project Location: Back Bay Fens	Drilling Contractor: Geo-Tek	Drilling Method/Rig: DTC/3" Spill Spoon	Drillers: Glen & Tom	Drilling Date: Start: 8/2/00	Borehole Coordinates:	ш	Sample							EX METHODS: Notice Stem Solid Stem Hand Auger Ale Rotary Dual Tube R Foam Rotary Reverse Circ	· Jetting
2000	Cilent: Project	Drill	Drill	Drille	Drill	Bore	z	Sample	SS	SS	SS				DRILL HSA HSA HAA HAA HAA HAA HAA HAA HAA HAA	JET

BOREHOLE LOG BBF-SED-57	Project Name: Muddy River Project Number: 1517-28449-SR.SEDSAMP.FIELD	Surface Elevation (ft.):	Total Depth (ft.): 10	Depth of Water (ft.): 2.0	Abandonment Method: Collapsed	Field Screening instrument: OVM w/ 10.2 PID	Logged By: K. Dillaway	Material Description	0-2: Wet, very loose, black, medium to fine SAND, trace line gravel, organic. Petroleum odor.	2-4'; As above.	4-6; As above.		6-8"; Top 8". As above. Bottom 12": Wet, medium dense, grey, fine SAND and SILT, trace organics.	8-10': Top 9": Wet, loose, grey, fine SAND and SILT, trace organics.	Bottom 9*: Wet, medium dense, grey, coarse to fine SAND, trace gravel (native).	Bottom of Exploration at 10 feet BGS.	REMARKS REMARKS
88								muterte notengised									NG TYPES: NG TYPES: Auge/Cath Sampler (1.57 Bock Core Galfonia Sampler (1.57 Bock Core Gaprobe Gaprobe Gaprobe Spill Spoon Shafty Tube War N Sample Above Ground
	rtment							Graphic Log		****	***	****	*****	₩			REVIATIONS SAMPLING TYPES: A Augus/Grab Sa. CS: California Same NX: 1.5° Reck Cora NX: 2.1° Reck Cora NX: 2.1° Reck Cora NX: 2.1° Reck Cora NX: 3.1° Reck Cora NX: 3.
	Depa		noo		2/00			g luches Blows bet	Push	Push	Push		WOR 8	0 eu -	9 1		SAMPLIM SAMPLIM AS A CS A CS A CS A CS A CS A CS A CS A
	reation		split Sp		End: 8/2/00			Field Instrument Reading (mqq)	A N	424	2	N A	A N		Y Y		# 840#291#88>04
	nd Rec	No-Tek	TC/3"		2/00			(ft.)	0			ro.			ļ	5 8	O NOIL
Street 02139	Parks a	ctor: Ge	/Rig: D	Tom	Start: 8/	dinates:		Sample Recovery (Inches)	24/10	8,50	2412	24/24	24/20		24/18		EXPLANATION OF ABBREVIATIONS 208: SAMPLING TYPE 100 100 100 100 100 100 100 100 100 10
CDM 50 Hampshire Street Cambridge, MA 02139	Client: Boston Parks and Recreation Department Project Location: Back Bay Fens	Drilling Contractor: Geo-Tek	Drilling Method/Rig: DTC/3" Split Spoon	Drillers: Glen & Tom	Drilling Date: Start: 8/2/00	Borehole Coordinates:	ш	Sample									EXPLA EXPLOS: Notice State Auge And Auger Hand Auger Hand Auger Dual Tube Goary Mud Retay Dual Tube Goary Mud Retay Aud Retay Cabar Retay Aud Retay Cabar Retay Aud Retay Cabar Retay Aud Retay Aud Retay Cabar Retay Aud Retay
So	Clien	Drilli	Drilli	Drille	Drilli	Bore	z	Sample	SS	9	2	SS	SS		SS		DANILL HAA BAR CT CT

CONT DIESOEN & MOREE COMPINED Street Cambridge, MA 02139	BOREHOLE LOG BBF-SED-58
Client: Boston Parks and Recreation Department Project Location: Back Bay Fens	Project Name: Muddy River Project Number: 1517-28449-SR, SEDSAMP, FIELD
Drilling Contractor: Geo-Tek	Surface Elevation (ft.):
Drilling Method/Rig: DTC/3" Split Spoon	Total Depth (ft.): 12
Drillers: Glen & Tom	Depth of Water (ft.):
Drilling Date: Start: 8/1/00 End: 8/1/00	Abandonment Method: Collapsed
Borehole Coordinates:	Field Screening Instrument: OVM w/ 10.2 PID
W Z	Logged By: K. Dillaway

Reviewed by: J. M. C. Muller Date: 12-11-60	REMARKS		Bottom of Exploration at 12 feet BGS.	10-12: Wet, medium dense, gray, coarse to fine, SAND (native).	8-10: Wet, medium dense, grey, coarse to fine SAND (native).	6-8". Wet, medium dense, grey, coarse to fine SAND (native).	4-6"; Top 18"; As above. Bottom 2": Wei, very loose, grey, fine SAND and SILT.	2-4; As above.	0-2: Wet, very loose, black, silty, SAND, some organics. Petroleum odor.	Material Description	Logged By: K. Dillaway	Field Screening Instrument: OVM w/ 10.2 PID	Depth of Water (ft.):	Total Depth (ft.): 12	Surface Elevation (ft.):	Project Name: Muddy River Project Number: 1517-28449-SR.SEDSAMP.FIELD		Sheet 1 of 1
3 AAAPUNOTYPES: AS AAAPUNOTYPES: C Collinerins Barropler BX 1.5 Road Core BX 1.5 Road Core BX 64 Road Core C 65 Collinerins Barropler BX 2.1 Road Core C 65 Collinerins Barropler B 70 Road Core B 8 Sald Spoon B 8 Sald Spoon B 8 Sald Spoon C 71-ER Wash Sample AS Abord Counted AS Sald Spoon Sald Spoon AS Sald Spoon AS Sald Spoon Sald Spoon Sald Spoon Sald Sald Sp							~~~~	~~~~~		Stratum nodengiaeO							<u> </u>	۵
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MAPLING PARTIES SEED SEED SEED SEED SEED SEED SEED S	EVIAT		► III	φ w m	10 M	m ~ 00 1	Push	WOR	Push	Blows per 6 inches			9	000		Depa		
942955825	F ABBR		5.7		NA A	4.2	A A	1	9.6	pribaeA (mqq)			0	Split Sp		reation		E
	IO NOT	ro To		02			NO.		0	Elex, Oepth (ft.)			00	TC/3"	Geo-Tek	ind Rec k Bay F		& McK
ODS: Stem Auger term Auger Uger My Wary Wary Wary S Circulation ood	EXPLANATION OF ABBREVIATIONS		24/20		24/20	24/20	24/20	24/12	24/8	Sample (Inches)		dinates:	& Tom	MRIg: D		Boston Parks and Recreation Department Location: Back Bay Fens	Street A 02139	SSER
NG METHODS: Hollows Start Auger Solid Stern Auger Hand Auger Air Rotary Duel Tube Rotary Four Rotary Reverse Circulation Letting Diving Through Cashing	EX									Sample	ш	Borehole Coordinates:	Drillers: Glen & Tom	Drilling Method/Rig: DTC/3" Split Spoon	Drilling Contractor:	Client: Boston Parks and Recreat Project Location: Back Bay Fens	50 Hampshire Street Cambridge, MA 02139	CAMP DRESSER & McKEE
PRILLI PRANTA PR			SS		SS	SS	SS	SS	SS	Sample	z	Bore	Drille	Drill	Drill	Client: Project	0 S S	0

BOREHOLE LOG	Project Name: Muddy River Project Number: 1517-28449-SR.SEDSAMP.FIELD	Surface Elevation (ft.):	Total Depth (ft.): 10	Depth of Water (ft.): 5.0	Abandonment Method: Collapsed	Field Screening Instrument: OVM w/ 10.2 PID	Logged By: K. Dillaway		0-2; Wet, very loose, black to tan, medium to fine SAND, some gravel, trace sift. Sheen, petroleum odor.	2-4: As above.	4-6: Wet, very loose, black to tan, medium to fine SAND, some gravel, trace silt. Sheen, petroleum odor.	6-8: Wet, very loose, black to tan, medium to fine SAND, some gravel, trace silt. Sheen, petroleum odor.	8-10: Wet, very loose, grey, fine SAND and SILT, trace shells and organics (native). Strong organic color.	Bottom of Exploration at 10 feet BGS.		REMARKS	
<u> </u>	ŧ							Log Stratum Designation	*****	******	******	******					NG TYPES: Auge/Cats Sample Auge/Cats Sample 1.5" Rock Core 2.1" Rock Core Reprose Hydro Punch Hydro Punch Shelty Tube Wash Sample
	Boston Parks and Recreation Department Location: Back Bay Fens		nou		00/			Blows per 6 Inches Graphic Log	Hall Hall	WOR 2 1(12")	Push		2222			EXPLANATION OF ABBREVIATIONS	SAMPLING TYPES: A8 Angewidab Sample C8 California Sample EX 11* Flook Core NX 2.1* Flook Core NY 2.1* Flook Core HP Hydro Plunch S1 Shalls Spoon S1 Shalls Sample OTHER
	reation		Split Spo		End: 8/1/00			Insminitani bleii gnibsefi (mqq)	4.7	A N	1.2	A N	0.0			ABBRE	S S S S S S S S S S S S S S S S S S S
	and Rec	eo-Tek	TC/3"					Elev. Depth (ft.)	0	1 1	ıo		ļ	2	15	IO NOL	
Ire Street	Parks on: Bac	ctor: G	d/Rig: [& Tom	Start: 8	dinates		Semple Recovery (Inches)	24/4	24/2	24/8	24/8	24/18			PLANA	DS: lem Auger m Auger jer / / / Rotary lary lary Sirculation of
CDDM 50 Hampshire Street Cambridge, MA 02139		Drilling Contractor: Geo-Tek	Drilling Method/Rig: DTC/3" Split Spoon	Drillers: Glen & Tom	Drilling Date: Start: 8/1/00	Borehole Coordinates:	ш	Sample								X	NG METHODS: Hofflow Stern Auger Solid Stern Auger Hand Auger Air Rotlary Dual Tube Rotary Foam Rotary Mud Rotary Mud Rotary Gubb Tool
S & Q	Cilent: Project	Drill	Drill	Drill	Drill	Borr	z	Эатрю Туре	SS	SS	SS	SS	SS				HASA SSSA SSSA SSSA SSSA SSSA SSSA SSSA

HOLE LOG	Project Name: Muddy River Project Number: 1517-28449-SR.SEDSAMP.FIELD	Surface Elevation (ft.):	Total Depth (ft.): 12	Depth of Water (ft.): 4.5	Abandonment Method: Collapsed	Field Screening Instrument: OVM w/ 10.2 PID	Logged By: K. Dillaway	Material Description	0-2: Wet, very loose, medium to fine SAND, little silt, trace shell fragments. Petroleum odor.	2-4: Wet, very loose, medium to fine SAND, little silt, trace shell fragments. Visible sheen on soil and petroleum odor.	4-6: Wet, very loose, black, medium to line SAND, little stlt, trace shell fragments. Visible sheen on soil and petroleum odor. Rock in tip of spoon.	6-8: Wet, very loose, black, coarse to fine SAND, trace fine gravel. Petroleum odor.	8-10': Wet, very loose, grey, fine SAND and SILT (netive). Strong organic odor.	10-12: Wet, very loose, grey, fine SAND and SILT (native). Strong organic odor.	Bottom of Exploration at 12 feet BGS.	REMARKS	
BOREH BBF-SED-60	Projec Projec	Surfac	Total	Depth	Aband	Fleld	Logge	Designation	0-2": Wet, fragments.	2-4". Wet, fragments	4-6". Wet, fragments. spoon.	6-8': Wet, Petroleum	8-10': Wet organic od	10-12: We organic od	Bottom of		a picture services and a service and a services and a services and a service and a serv
	ment							Graphic Log Stratum								SNC	NG TYPES: Auger/Grab Sample California Sample California Sample 1:15 Rock Core Geoprobe Hydro Panch Spall Spoon Spall Spoon Wash Sample
	Depart		noc		1/00			Blows per 6 Inches	Push	JOH (12	WOH 2		20			EVIATION	SAMPLING CS Cal CS Cal NX 2.1.5 NX 2.1.5 NX 2.1.5 SS SS SS SS SS
	reation		Split Spi		End: 8/1/00			tnemutent bleid gnibseA (mqq)	1.7	2.2	A A	AN N	0.1	0.1		F ABBR	640 E C E C E C E C E C E C E C E C E C E
	nd Rec	90-Tek	TC/3"					Elex. Depth (ft.)	0		a a			9	10	ONOL	
Street 1 02139	Boston Parks and Recreation Department Location: Back Bay Fens	ctor: G	MRIg: D	& Tom	Start: 8	dinates:		Semple Recovery (Inches)	24/2	24/18	24/12	24/8	24/8	24/8		EXPLANATION OF ABBREVIATIONS	B: Auger Auger Posery ry
Cambridge, MA 02139	Client: Boston Parks and Recreat	Drilling Contractor: Geo-Tek	Drilling Method/Rig: DTC/3" Split Spoon	Drillers: Glen & Tom	Drilling Date: Start: 8/1/00	Borehole Coordinates:	ш	Sample								۵	ING METHODS Hollow Ster Solid Stem Hand Auges Air Rotary Dust Tube 8 Foam Rotary Mud Rotary Reverse City
08.0	Client	Drill	Drille	Drille	Drill	Bore	z	Sample	SS	SS	SS	SS	SS	SS			DANKA HEA HAA HAA PTR FR FR FR CT

BOREHOLE LOG RW-SED-01	Project Name: Muddy River Project Number: 1517-28449-SR-SEDSAMP.FIELD	Surface Elevation (ft.):	Total Depth (ft.): 8	Depth of Water (ft.): 1.1	Abandonment Method: Collapsed	Field Screening Instrument: OVM w/ 10.2 PID	Logged By: JJ Callahan	Material Description	0-2": Wei, very loose, black, medium to fine SAND, trace organics (eticks, root mass), glass and brick.	2-4; Wet, medium dense, black, medium to fine SAND, trace fine gravel, brick and glass. Slight petroleum odor.	4-4°: Top 8°: Wel, very dense, black, medium to fine SAND, trace brick and glass. Petroleum odor. Middle 8': Vel, veny dense, brown, coarse to fine SAND and GRAVEL, trace sit.	Bottom 8*: Wet, very dense, grey, coarse to fine SAND and GRAVEL, teres 48: Top 22*: Wet, very dense, dark grey to grey, coarse to fine SAND and GRAVEL, trace medium gravel, glass and brick.	Dottom 2: ver, very very earse, provin, coarse to fine Schrut, inter fine Segment, trace, still (native)			REMARKS	Open hole baring.
ω ≧								Stratum nobsnejseO					/				SAMPLING TYPES: AS AND
	ment							Graphic Log								SNO	G TYPES: uger/drab Sa- aelifomia Seri 6. Rock Con seprobe tydro Punch plul Spore hydro Punch heby Tube Wash Sample
	Depart		ПО		/11/00			Blows per 6 Inches		- N m %	23 23 23 23	≅ ≋ ½ ¢				EVIATI	MEER WEST STATE
	reation	_	Split Spo		End: 8			Field Instrument Reading (mqq)	0.0	0.0	0.0	0.0				F ABBR	% <u>40859</u> ±% 2≥0;
	nd Rec	:0-TE	TC/3"		11/00			Eler Depth (ft.)	0		m	1 1		9	100	 ONOI	
Street	Parks a	ctor: GE	VRIg: D	& Mike	Start: 8/	dinates:		Sample Recovery (Inches)	24/8	24/18	24/24	24/24				EXPLANATION OF ABBREVIATIONS	THODS: W Stem Auger Stem Auger A Auger offing Those Rolary Those Motary Rotary Rotary To Couletter To Couletter
Cambridge, MA 02139	Client: Boston Parks and Recreation Department Project Location: Riverway	Drilling Contractor: GEO-TEK	Drilling Method/Rig: DTC/3" Split Spoon	Drillers: Dave & Mike	Drilling Date: Start: 8/11/00 End: 8/11/00	Borehole Coordinates:	ш	Sample								i i	ING METHODS: Hotiow Stem Auger Sold Stem Auger Hand Auger Air Rotinsy Foam Robary Mud Rotary Reverse Circulation Letting
50 t	llen	=	Ē	rille	rilli	Jore	z	Sample	SS	SS	SS	SS					SA ASSA ASSA ASSA ASSA ASSA ASSA ASSA

CAMP DRESSER & MCKEE CDM 50 Hampshire Street Cambridge, MA 02139	BOREHOLE LOG RW-SED-02
Client: Boston Parks and Recreation Department Project Location: Riverway	Project Name: Muddy River Project Number: 1517-2849-SR-SEDSAMP, FIELD
Drilling Contractor: GEO-TEK	Surface Elevation (ft.):
Drilling Method/Rig: DTC/3* Split Spoon	Total Depth (ft.): 10
Oriliers: Dave & Mike	Depth of Water (ft.): 2.0
Orilling Date: Start: 8/11/00 End: 8/11/00	Abandonment Method: Collapsed
Borehole Coordinates:	Field Screening Instrument: OVM w/ 10.2 PID
ш	Loqued By: J J Callahan

BOREHOLE LOG RW-SED-03

CAMP DRESSER & McKEE
CDM
60 Hampshire Street
Cambridge, MA 02139

COMP DRESSER & MCKEE CDM BOREHOUS Breat So Hampshire Street So H		Drilling Method/Rig: DTC/3" Split Spoon Total Depth (ft.): 10	Drilling Date: Start: 8/11/00 End: 8/11/00 Abandonment Method: Collapsed	Field Screening instrument: OVM w/ 10.2 PID	Field instrument Field along displays Field (ppm) Blows per 6 Inches Log Log Log Statum Costgraftum Designation	0.0 1 0-2: No Recovery.	15 2.4" Wet, very dense, black, fine SAND, trace fine gravel and brick. 2.0.0 21 Slight petroleum odor.	4-6: Top 12:: Welt, dense, black, fine SAND, trace brick and glass. 9.0 21	20 23 medum gravel, brick and glass.	0.0 22 8-10: As above.	Bottom of Exploration at 10 feet BGS.		EXPLANATION OF ABBREVIATIONS	9 AAPPLING TYPES. A A Application TYPES. C3 - Calerona Sample BX - 1.F Road Cone NX - 1.F Road Cone NY - Calerona Sample NY - 1.F Road Cone NP - Calerona Sample NP - Calerona NP - Cale
CAMP DRESSER & MCKEE CDM So Hampshire Street Cambridge, MA 02139 Client: Boston Parks and Recreal Project Location: Riverway	Drilling Contractor: GEO-TEK	Drilling Method/Rig: DTC/3*	urt: 8/11/00	Borehole Coordinates:	Sample Recovery (inches)	24/0	24/12	24/24 5	24/24	24/24	9	2	ANATION O	a METHODS: Choloro Stem Auger Choloro Stem Auger Sould Stem Auger Hand Auger All Rotary Cean Rolary Rokan Rolary Reverse Circulation Cabe Tool Caber Stems Stems

Start Sumple Su	100	Doden as	100	100	1	1		
### Surface Elevetion (ft.): ### Abandomment Method: Collapsed dinates: ### Abandomment Method: Collapsed di	CB	in Parks al	nd Hed	reation	Uepar	tment		Project Name: Muddy River Project Number: 1517-28449-SR-SEDSAMP.FIELD
Start 8/16/00 End: 8/16/00 Total Depth (ft.): 12 Depth of Water (ft.): 17 Abandonment (ft.): 18 Abandonment (ft.): 1	ont	actor: GE	O-TE	_				Surface Elevation (ft.):
Start: 8/16/00 End: 8/16/00 Abandonment Method: Collapsed	ath	Dd/Rig: D1	C/3.	Split Spo	LO			Total Depth (ft.): 12
Peter 8/16/00 End: 8/16/00 En	av	e & Mike						Depth of Water (ft.): 1.7
Cogged By: JJ Callahan Cogged By: JJ Calla	te:	Start: 8/1	00/9	End: 8	/16/00			Abandonment Method: Collapsed
Control Cont	Ö	ordinates:						Fleld Screening Instrument: OVM w/ 10.2 PID
Cartier Cart								Logged By: JJ Callahan
24/3	96	(јисџев)	(ft.)	Reading	Blows per 6 Inches		Stratum	Material Description
24/5		24/3	0	0.0	0			0-2": Wet, very loose, black, line SAND, trace organics.
24/12		24/5		0.0	n n 4 c			2-4: Wet, loose, black, fine SAND and gray/brown SILT, trace fine gravel. Clear straitfication observed.
24/12		24/12	ro.	0.0	200-100			4-6".: Wet, medium dense, black, fine SAND and gray SILT, trace gravel.
24/3 - 0.0 6 8 8-10: Wet, medium dense, black, fine SAND, trace brick. 10 80 10: Wet, medium dense, black, fine SAND, trace brick. 24/24 - 0.0 8 80 10-12: Wet, vary dense, black to grey, coarse to fine SAND, it trace line gravel (make). 15 80 10-12: Wet, vary dense, black to grey, coarse to fine SAND, it trace line gravel (make). 15 80 10-12: Wet, vary dense, black to grey, coarse to fine SAND, it trace line gravel (make). 16 80 10-12: Wet, vary dense, black to grey, coarse to fine SAND, it trace line gravel (make). 16 80 10-12: Wet, vary dense, black to grey, coarse to fine SAND, it trace line gravel (make). 17 80 10-12: Wet, vary dense, black to grey, coarse to fine SAND, it trace line gravel (make).		24/12	1	0.0	21 21 25			6-8". Wet, dense, black to grey, coarse to fine SAND, some fine gravel iffee grey sill, trace brick.
24/24 0.0 80 trace line gravel (naive). 89 trace line gravel (naive). 89 trace line gravel (naive). 80 trace line gravel (naiv		24/3	+	0.0	6 5 7 2			8-10": Wet, medium dense, black, fine SAND, trace brick.
PLANATION OF ABBREVIATIONS PLANATION OF ABBREVIATION OF ABBREVIA		24/24	9	0.0	= 8888			10-12': Wet, vary dense, black to grey, coarse to fine SAND, little silt, trace line gravel (native).
15			1 1					End of Boring at 12 feet BGS.
		1 1 1 1	5					
August R. S. S. S. August R. S. S. S. August R. S.	0	KPLANATIC	NO NO	ABBRE	VIATIC	SNS		REMARKS
	ETHODS from Stell Stem No Stell Stem No Auge Rotary at Tube 1 Inbe 1 Inb	S: Auger f Rotary ry reulation		S A S A S A S A S A S A S A S A S A S A	Auga Calif 1.5 1.5 1.5 1.5 1.5 1.5 1.5 1.5 1.5 1.5	YPES: w/Grab Somia Sal Brock Con Prock Con srobe Spoon by Tube	hample moles as	

BOREHOLE LOG RW-SED-04	Project Name: Muddy River Project Number: 1517-28449-SR-SEDSAMP.FIELD	Surface Elevation (ft.):	Total Depth (ft.): 16	Depth of Water (ft.): 0.0	Abandonment Method: Collapsed	Field Screening Instrument: OVM w/ 10.2 PID	Logged By: JJ Callahan	Meterial Description	0-2: Wet, vary loose, black, ORGÁNICS (muck, sticks, leaves, root mass), little fine sand, trace glass and paper.	2-4: Wet, very loose, black, fine, SAND and ORGANICS (muck leaves, sticks). Moderate petroleum odor.	4-6". Top 9": Wet, very loose, black, fine, SAND and ORGANICS. Middle 3": Wet, very loose, black, fine GRAVEL and SILT. Badom 12": Wet, very loose, grey, SILT and ORGANIC MUCK (leaves and mot mass).	6-8' Wet, medium dense, black to grey, coarse to fine SAND, some sit, trace fine gravel.	8-10: Wet, loose, black to grey, ORGANIC MUCK (sticks, leaves), iithle grey sill and fine gravel.	10-12". Wet, dense, dark gray to gray, coarse to fine SAND, some silt, ittle fine gravel, trace organics.	12-14": Wet, dense, grey, coarse to fine SAND (native).	14-16: As above.	Bottom of Exploration at 10 feet BGS.	REMARKS	
	Ę							Log Stratum Designation	*****	******	*******	*****	×××××	******	× -275	828-828-838-83-83-83-83-83-83-83-83-83-83-83-8			WPLING TYPES: Augustrant Sample Californa Sample 115 Rock Core 217 Rock Core Georbe Georbe Spit Spoon
	artme				00			Graphic	**************************************		******								Auger/Grab Sa Coefforms Barn 1.5* Rock Corn 2.1* Rock Corn Geoprobe Hydro Punch Spiti Spoon Sheby Tube Wash Sample
	u Dep		nood		8/10/			Blows per	WOR		- N N	0 r 10 r	1 m m 4	B 25 27	24 28	8 3 3 2		SEVIA	SAMPUN ABX
	reatio		Split S		End:			Field Instrument Reading (ppm)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		ABB	W40M20TW650
	nd Rec	O-TE	C/3° 8		10/00			(fr.)	0	1	lio.	1	1	9	1	19	1 1	ONO	
Street 1 02139	Boston Parks and Recreation Department Location: Riverway	ctor: GE	VRIg: D	& Mike	Start: 8/	dinates:		Sample Recovery (inches)	24/8	24/4	24/24	24/10	24/24	24/20	24/24	24/24		EXPLANATION OF ABBREVIATIONS	Auger uger otary utelon
CDPM 50 Hampshire Street Cambridge, MA 02139		Drilling Contractor: GEO-TEK	Drilling Method/Rig: DTC/3* Split Spoon	Drillers: Dave & Mike	Drilling Date: Start: 8/10/00 End: 8/10/00	Borehole Coordinates:	ш	Sample Number										EX	MG METHODS: Holiow Stem Auger Sorid Stem Auger Hand Auger Air Rolany Dust Tube Rolany Fourn Rotary Mud Rotary Reverse Circuistion Cable Tool
80	Client	Drill	Drill	Drille	Drill	Bore	z	Sample	SS	SS	SS	SS	SS	SS	SS	SS			DAULLIN HASA HAA HAA DITH

BOREHOLE RW-SED-05	Project Name: Muddy River Project Number: 1517-28449-SR-SEDSAMP.FIELD	Surface Elevation (ft.):	Depth of Water (ft.): 0.7	Abandonment Method: Collapsed	Field Screening Instrument:	Logged By: JJ Callahan	Material Description	6-2: Wet, very loose, black, organic SILT and DECOMPOSED LEAVES, STICKS AND PEAT, some coarse to fine sand, trace brick and asphalt. Slight petroleum odor.	2-4; Wet, derese, black to grey, coarse to fine SAND and organic SILT (muck), trace fine gravel, no odor.	4-6: Wet, dense, black to gray, medium to fine SAND and organic SILT (muck).	6-8". Wet, dense, grey, coarse to fine SAND and SiLT, trace fine gravel (naiive).	8-10": Wet, dense, grey, fine to medium SAND and SILT, trace fine gravel (native).	Bottom of Exploration at 10 feet BGS.		REMARKS
	artment			,00			6 Inches Graphic Log Stratum								SHEVIATIONS SAMPLING TYPES CS CApprofiles Semple CS CAPPORT CA
	Client: Boston Parks and Recreation Department Project Location: Riverway	Drilling Contractor: GEO-TEK	loods 1	Drilling Date: Start: 8/14/00 End: 8/14/00			(bbm) Hesqing	WOR (18"	9 0.0 27 19	0.0 16 25	0.0 29	0.0			EXPLANATION OF ABBREVIATIONS 1005: 1005: 1006:
	Hecres ay	Drilling Contractor: GEO-TEK	5	1/00 En			(ft.) specific theminitani blei	0	-	0 0	0		2	25	 NO NO PE
	Client: Boston Parks and R Project Location: Riverway	N A	Drillers: Dave & Mike	/14	Borehole Coordinates:		Пестову)	24/24 -	24/10	24/22	-	24/24		ļ	 E .

CD (CC
CAMP DRESSER & MCKEE CDDM SO Hampshine Street Cambridge, MA 02/39

LOG

Sheet 1 of 1

Project Number: 1517-28449-SR-SEDSAMP.FIELD Field Screening Instrument: OVM w/ 10.2 PID Abandonment Method: Collapsed Project Name: Muddy River OREHOLE W-SED-06 Logged By: JJ Callahan Depth of Water (ft.): 0.0 Surface Elevation (ft.): Total Depth (ft.): 12 Client: Boston Parks and Recreation Department Drilling Date: Start: 8/14/00 End: 8/14/00 Drilling Method/Rig: DTC/3" Split Spoon Drilling Contractor: GEO-TEK Project Location: Riverway

0-2". Wet, very loose, black to grey, MUCK. Worms noted in spoon. Material Graphic Log Stratum Designation Blows per 6 Inches gribseA (mqq)

4-6*: Top 8*: Wet, very loose, black to grey, organic, SILT and PEAT, some organic muck.

Bottom 16*: Wet, very loose, grey, coarse to fine SAND. 2-4": Wet, very loose, black, organic, MUCK.

0.0

24/24

SS

Sample Recovery (Inches)

Sample Sample

Borehole Coordinates:

Drillers: Dave & Mike

0.0

24/24

SS

0.0

24/24

SS

6-8": Wet, very loose, black to grey, organic, SILT, some organic muck, trace coarse sand and wood.

1 (12")

0.0

24/24

SS

8-10": Wet, dense, grey, coarse to fine SAND, little grey silt (native).

10-12": Wet, medium dense, gray, coarse to fine SAND and SILT (native).

2 2 2 2 2 2 2 2 2

10

0.0

24/24

SS

0.0

24/18

SS

Bottom of Exploration at 12 feet BGS.

5

EXPLANATION OF ABBREVIATIONS

Askale Land 77 Press.
Augentine Semple
Semple
MX 2.1 Flood Core
MX 2.1 Flood Core
GP Gasprose
HP Nythro Purch
S Spitt Spoon
W3 Wash Sample
W3 Wash Sample

IDDY_RIVER_BL MARW.GPJ COM_MA GDT 12/13/00

Reviewed by: J. M. C. Muller Date: 12/11/60

CDM MCAE So Hampshire Street Cambridge, MA 02139	BOREHOLE LOG RW-SED-07
Client: Boston Parks and Recreation Department Project Location: Riverway	Project Name: Muddy River Project Number: 1517-28449-SR-SEDSAMP.FIELD
Drilling Contractor: GEO-TEK	Surface Elevation (ft.):
Drilling Method/Rig: DTC/3" Split Spoon	Total Depth (ft.): 10
Drillers: Dave & Mike	Depth of Water (ft.): 1.3
Drilling Date: Start: 8/17/00 End: 8/17/00	Abandonment Method: Collapsed
Borehole Coordinates:	Field Screening Instrument: OVM w/ 10.2 PID
ш	Logged By: J J Callahan

Material Description	0-2: Wet, very loose, black, organic SILT, trace fine sand. Petroleum odor.	2-4". Wei, loose, black and brown, coarse to fine SAND and organic SILT, some oxidized, trace fine gravel and brick.	4-6". Welt, medium dense, black to gray, coarse to fine SAND and SILT, trace fine gravel, some oxidation present.	6-9": Wet, dense, black to grey, coarse to fine SAND and SILT, trace fine gravel (native).	10-12: Wet, vary dense, brown (oxidized), coarse to fine SAND, trace gravel (native).	End of Boring at 10 feet BGS.				REMARKS	Haviewed bv: 7 MCM. 1/0. Date: 12.1/.00
mutang Designation							 		·····		pleton p
Graphic Log										SNC	ING TYPES: California Sample California Sample 1.5° Rock Core Geoprobe Geoprobe Spill Spoon Spill Spoon Shalpy Tube Mash Sample
Blows per 6 Inches	WOH	10001	4 4 2 5	32 57 29	33 25 25					EVIATION	SAMPLING TYPES: AS Auge/forbs S. Caldionie Sas 1.5 Rock Co. NX 1.5 Rock Co. NX 2.1 Rock Co. NX 2.1 Rock Co. NX 3.1 Sampl Co. NX 3.1 Sampl Co. NX 3.1 Rock Groun GTHER. AGS Above Groun Surface
Field Instrument BribseA (mgq)	0.2	0.0	0.0	0.0	0.0					EXPLANATION OF ABBREVIATIONS	A SON STRUMENT OF
Elex Depth (ft.)	0		ls.			10	135		1	ONOL	
Sample Recovery (Inches)	24/12	24/10	24/12	24/24	24/24					PLANA	Auger Auger Interpretation Casing
Sample											DDRILLING METHODS: High A Methods: SSA & Bolled Stein Auget HA Had Nead Auget HAR Alt Rouny DTR Court Rolany DTR Method Had Had HA Had Hade HA HAD HAD HA HAD HA
8 2		SS	SS	SS	SS		 			1	DARLLII SSAA SSAA SSAA NAR DITH CT CT C

BOREHOLE LOG RW-SED-08	Project Name: Muddy River Project Number: 1517-28449-SR-SEDSAMP,FIELD	Surface Elevation (ft.):	Total Depth (ft.): 8	Depth of Water (ft.): 1.5	Abandonment Method: Collapsed	Fleid Screening Instrument: OVM w/ 10.2 PID	Logged By: J J Callahan		0-2: Wet, very loase, black to grey, coarse to fine SAND and SILT, trace paper.	2-4": Top 8". Wet, medium dense, black to grey, coarse to line SAND and SILT, trace organics. Bottom 8": Wet, medium dense, grey, SILT, some brown peat.	4-9: Wet, dense, dark grey to grey, coarse to fine SAND and SILT (native).	6-6: Top 12: Wet, very dense, dark grey, medlum to fine SAND. Bottom 12: Wet, light brown SILT, some coarse sand, trace gravel (autive).	End of Boring at 8 feet BGS.				Peritament but TOCM, Man Date 12-11-00
	rtment				0			Graphic Log Stratum Designation									SHEVIA TIONS CAMPAIND TYPES CAMPAIND TYPES CS Callional Sample CS Callional Sample NX 1.5 Roct Core NX 1.5 Roct Core OP Cappoint HP Apple Punch SIR Spoon SIR Spoon WR Wash Sample OP CAMPAIND Add N. Above Ground
и	Boston Parks and Recreation Department Location: Riverway		lit Spoon		Drilling Date: Start: 8/18/00 End: 8/18/00			(ppm)	WOH (12	0.2	0.0	0.0 38					EXPLANATION OF ABBREVATIONS SOLVENTION SOLVENIT SOLVENIT SOLVENIT SOLVENIT SOLVENIT SOLVENIT SOLVENIT SOL
COMP. DIESSEN & MONEY SO Hampshirs Street Cembridge, MA 02139	and Recre	EO-TEK	TC/3" Sp		/18/00 E			O eptr (ft.) Inemuntani biei	0	1 1	lo.		Ş	2	1 .1	- C	HON OF
Street A 02139	n Parks a	actor: G	d/Rig: D	& Mike	Start: 8	rdinates:		Sample Recovery (Inches)	24/3	24/14	24/22	24/24					EXPLANA DOS: Stem Auger Uger Ny
CDM So Hampshira Street Cambridge, MA 02139	Client: Boston Parks and R Project Location: Riverway	Drilling Contractor: GEO-TEK	Drilling Method/Rig: DTC/3" Split Spoon	Drillers: Dave & Mike	ing Date:	Borehole Coordinates:	ш	Sample									LING METHODS: Hollow Stem A- Heard Auger Air Rotary Dust Tribe R Foam Rotary Reverse Gree Cabbe Tool
3 9 8 8	Client: Project	Drill	Drill	Drill	Dri	Bon	z	elqme2 eq/T	SS	SS	SS	SS					D PRILL HASA HASA HASA HASA CT CT CT

CDM So Hampshire Street Cambridge, MA 02139	Boston Parks and Recreation Department Location: Riverway	Drilling Contractor: GEO-TEK		Drilling Date: Start: 8/17/00 End: 8/17/00		(mqq) (mqq) (pmbe Heading) (pmd) (pm	WOH	WOH WOH	0.8	0.6	- 2 2 7	0.0	0.0		EXPLANATION OF ABBREVIATIONS	BAARPUNG TPEES Smoke A.B August Gans Smoke B.K August Gans Smoke B.K 2.1 * Reac Care B.K 2.1 * Reac Care G Gallorine Smoke G Gallorine G Gall
BOREHOLE RW-SED-09	Project Name: Muddy River Project Number: 1517-28449-SR-SEDSAMP, FIELD	Surface Elevation (ft.): Total Depth (ft.): 14	Depth of Water (ft.): 0.0	Abandonment Method: Collapsed	Logged By: JJ Callahan		0-2: Wet, vary loose, black, organic SILT. Petroleum odor.	24* Wet, very loose, black, organic SiLT. Petroleum odor and visible sheen.	4-6". Wet, very loose, black, organic SILT. sheen.	6-8: Wet, very loose, black, organic SILT. Slight petroleum odor and visible shean.	8-10". Wet, very loose, black, organic SILT. Peat layer (6 inches) observed at spoon tip.	10-12: Wet, very loose, gray/black organic SILT, trace gravel, fine sand, and shell fragments (native).	12-14"; Wet, loose, grey, medium to fine SAND (native)	End of Boring at 14 feet BGS.		
L 0 G	9-SR-SEDSAMP.FIELD			psed		rial ption	SILT. Petroleum odor.	SILT. Petroleum odor and visib	SILT. Petroleum odor and visible	SILT. Slight petroleum odor and	c SILT, Peat layer (6 inches)	organic SILT, trace gravel, fine	fine SAND (native).		REMARKS	

Sheet 1 of 1	SAMP.FIELD					0.2 PID			T, some organics.				Date: 2- 1/-00
OREHOLE LO	Project Name: Muddy River Project Number: 1517-28449-SR-SEDSAMP.FIELD	Surface Elevation (ft.):	Total Depth (ft.): 2	Depth of Water (ft.): 1.3	Abandonment Method: Collapsed	Field Screening Instrument: OVM w/ 10.2 PID	Logged By: J. Zarnetske	Materiel Description	0-2 ft.: Wet, black to grey, coarse SAND and SILT, some organics Petroleum odor and visible sheen.	Bottom of Exploration at 2 feet BGS.		REMARKS	Reviewed by: 5. mc/le.
∞ ≧								Stratum Designation				-	pidus e
	tment				00			Graphic Log				SNS	ING TYPES: Auge/Grab Sample 1.5 Floor Core Gallomia Sample 1.5 Floor Core Gapprobe Spirit Spoon Spirit Spoon Spirit Spoon Weah Sample Above Ground
	Depar				10/19/			Blows per 6 Inches				VIATIO	a · · · · · · · · · · · · · · · · · · ·
E	reation		'Jegi		End: 10/19/00			field instrument Palabae (mqq)				ABBRE	SAMA A SAMA B S S S S S S S S S S S S S S S S S S S
W WCK	nd Rec	₩.	and Au	ndy	119/00		,	Elex. Depth (ft.)	0	φ 0	2	ONO	
Street V 02139	Parks a	ctor: CDM	VRIg: H	red, & A	Start: 10	dinates:		(luches) Recovery Sample	24/8			EXPLANATION OF ABBREVIATIONS	Auger Ligar stary
CAMP DRESSER & MCKEE CAMPINGS STREET Campingge, MA 02139	Client: Boston Parks and Recreation Department Project Location: Riverway	Drilling Contractor:	Drilling Method/Rig: Hand Auger/	Drillers: Jay, Fred, & Andy	Drilling Date: Start: 10/19/00	Borehole Coordinates:	ш	Sample				EX	nd MeTHODS: Hellow Stem Auger Sold Stem Auger Sold Stem Auger Hand Auger Hand Auger Dual Tola Rotary Mud Rotary Mud Rotary Mud Rotary Just
Q 80	Ciler	Drill	Drill	Drille	Drill	Bore	z	Sample	¥ I			1	DPRILLIN HAA - HAA

HOLE LOG	Project Name: Muddy River Project Number: 1517-2849-SR-SEDSAMP.FIELD	Surface Elevation (ft.):	Total Depth (ft.): 2 Depth of Water (ft.): 1.5	Abandonment Method: Collapsed	Fried Screening Instrument: OVM w/ 10.2 PID Logged By: J. Zametske	Material Description	0-2". Wel, black to grey, coarse SAND and SILT, some organics. Petroleum odor and visible sheen.	Bottom of Exploration at 2 feet BGS.	PEWARKS	
BORE R RW-SED-12		Surface	Total D Depth o		Logged	Graphic Log Stratum Designation	0-2: Wet, bi	Bottom of E.	ONS	Sample Core Core To The The The The The The The The The The
CDX MONEY SO Hampahire Sireet Cambridge, MA 02139	Client: Boston Parks and Recreation Department Project Location: Riverway	Drilling Contractor: CDM	ig: nand Auger ad, & Andy	Drilling Date: Start: 10/19/00 End: 10/19/00		Recovery (Inches) Field Inchment (Ppm) Field Inchment (Ppm) Blows pet 6 Inches	24/9	\s \c \s \s \s \c \s	EXPLANATION OF ABBREVIATIONS	SAMPLIT C AS
Cambridge, MA 02139	Cilent: Boston Parks and Project Location: Riverway	Drilling Contractor: CDM	Orillers: Jay, Fred, & Andy	Drilling Date: Start: 10	w N	eldmiss Nample Number el	HA 2			DRILLING METHODS: DRILLING METHODS: HEA. Holors Stem Auger HA. Ste

L O G	Project Name: Muddy River Project Number: 1517-28449-SR-SEDSAMP.FIELD				Collapsed	int; OVM w/ 10.2 PID		Material Description	0-27: Welt, black to grey, coarse SAND and SILT, some organics. Petroleum odor and visible sheen.	ν ₀	REMARKS	
BOREHOLE RW-SED-13	Project Name: Muddy River Project Number: 1517-2844	Surface Elevation (ft.):		Depth of Water (ft.): 1.2	Abandonment Method: Collapsed	Fleld Screening Instrument: OVM w/ 10.2 PID	Logged By: J. Zametske	≥ Ö	0-2: Wet, black to grey, coarse Petroleum odor and visible sheer	Bottom of Exploration at 2 feet BGS.		
шш	ent							Graphic Log Stratum Designation	*****		<u> </u>	FES: Grab Sample rie Sampler roli Core sok Core bbe Punch poon Tube
	Boston Parks and Recreation Department Location: Riverway				End: 10/19/00			Blows per 6 Inches	*******		EXPLANATION OF ABBREVIATIONS	SAMPLING TYPES SAMPLING TYPES CS Augmentar CS Augmentar NX 2.1° Rock NX 2.1° Rock NY 3.1° Rock N
	reation		/Jeő					field Instrument gnibseR (mqq)			ABBRE	S S S S S S S S S S S S S S S S S S S
	and Rec	DM	land Au	Andy	0/19/00			Elex. Depth (ft.)	0	un 2	15 TONOI	
Street A 02139	Parks an: Rive	ctor: C	MRig: ⊢	red, &	Start: 1	dinates		Sample Recovery (Inches)	24/10		PLANA	Auger Luger Otary
CDD Street Cambridge, MA 02139		Drilling Contractor: CDM	Drilling Method/Rig: Hand Auger/	Drillers: Jay, Fred, & Andy	Drilling Date: Start: 10/19/00	Borehole Coordinates:	ш	Semple			ă	NG METHODS: Hollow Stem / Bold Stem / Hand Auger Air Rollary Dual Tube R Foam Rollary Mud Rollary Reverse Girc
80	Client: Project	Drill	Drill	Drille	Dri	Bore	z	Sample	¥			DARELL HSA SSA SSA HA HA DTTR PRC CT

BOREHOLE LOG RW-SED-16	Project Name: Muddy River Project Number: 1517-28449-SR-SEDSAMP FIELD	Surface Elevation (ft.): Total Depth (ft.): 2	Depth of Water (ft.): 1.4 Abandonment Method: Collapsed	Fleid Screening Instrument: OVM w/ 10.2 PID	Logged By: J. Zametske	Material Description	0-2". Wet, black to grey, line SAND and SILT, some organica. Petroleum odor and visible sheen.	Bottom of Exploration at 2 feet BQS.			HEMARKS	
ω ἔ	ııt					pod mulan2 notisengised						ess: Sample risb Sample K. Core K. Core K. Core Core Core Core Core Core Core Core
	Departme		10/19/00			Blows per 6 Inches Graphic					EXPLANATION OF ABBREVIATIONS	SAMPLING TYPEB: As Augustran Sample CS Californis Sample BX 15 Rock Cone BX 2.1* Rock Cone GF Geostobe HP Nydro Punch SS Spirit Spoon ST Sheely Tube WWS Was Sample
	creation	/aebr/	End:			tnemuntani bleR gnibseR (mqq)					F ABBRE	& A CO BY A BY
	and Re	CDM Hand At	Andy 10/19/00	**		Depth (ft.)	0	la la	101	 5-	ATTON O	
GDM 50 Hampshire Street Cambridge, MA 02139	on Parks Non: Riv	ractor: od/Rig:	Fred, &	ordinate		Весочегу (Inches)	24/10				XPLAN	DB: em Auger er er P Rotary any cy Sirculation
Combridge, MA 02139	Client: Boston Parks and Recreation Department Project Location: Riverway	Drilling Contractor: CDM Drilling Method/Rig: Hand Auger/	Drillers: Jay, Fred, & Andy Drilling Date: Start: 10/19/00 End: 10/19/00	Borehole Coordinates:	ш	Sample						ING METHODS: Hollow Stem Auger Solid Stem Auger Hand Auger Auf Rotexy Oust Tube Rotery Foam Rotery Foam Rotery Reverse Circulation Cable Tool
80	Cile	Drill		Borr	z	Sample	¥ I					DAILL HSA SSA HAA HAA HAA NAR HAA CT CT

REHOLE LOG	Project Name: Muddy River Project Number: 1517-28449-SR-SEDSAMP.FIELD	Surface Elevation (ft.):	lotal Depth (1L.): 2 Depth of Water (1L.): 2.0	Abandonment Method: Collapsed	Field Screening Instrument: OVM w/ 10.2 PID	Logged By: J. Zarnetske	Material	0-2": Wet, black to grey, fine SAND and SILT, some organics. Petroleum odor and visible shear.	Bottom of Exploration at 2 ft. BGS.			REMARKS	Reviewed by: J. M. M. M. M. M. Date: 12-11-00
BORE RW-SED-17		Surfa	lotal Depti		Field	Logg	Pesignation	0-2: Wel	Bottom of			· v	
Œ	Client: Boston Parks and Recreation Department Project Location: Riverway		ngeri	Drilling Date: Start: 10/19/00 End: 10/19/00			Pield Instrument Reading (mpq) Blowe per alone per Alone per Blomphic					EXPLANATION OF ABBREVIATIONS	8.AAHLMOTTPEC. A A AUGUSTA SERVICE CS - California Sarroar NX - 13. Reda Core NX - 13. Reda Core NX - 19. Reda Core OP - Geography HP - Phylio Punch HP - Wilson Sarroar WS - Spirit Spirit WS - Spirit Spirit MS - Above Ground AGS - Above Ground AGS - Above Ground
CAMP DRESSER & MCKEE CDM S0 Hampathire Street Cambridge, MA 02139	n Parks and Reon: Riverway	actor: CDM	Drillers: Jay, Fred, & Andy	Start: 10/19/0	rdinates:		Sample Recovery (Inches)	24/16	lun lun	10	 <u> </u>	CPLANATION O	ETHODS: love Stem Auger love Stem Auger of Auger
CAMP DRESSER COMPANIES Street So Hampshire Street Cambridge, MA 02 139	Client: Boston Parks and P Project Location: Riverway	Drilling Contractor: CDM	Drillers: Jay, Fred, & Andy	orilling Date:	Borehole Coordinates:	ш ш	eqyT Sumple Number	HA				ă	DRILING METHODS: HSA - Hellow Stem HSA - Solid Stem A HA - Hand Augen Alf Robery Out Tobe By For Found Robery MM - May Robery RC - Gable Tool JET - Jelting Drive Completed To Drive By Drive Completed To Drive By Drive Completed Thought Only Drive C

BOREHOLE LOG RW-SED-18	Project Name: Muddy River Project Number: 1517-28449-SR-SEDSAMP FIELD	Surface Elevation (ft.): Total Denth (ft.):	Depth of Water (ft.): 2.9	Abandonment Method: Collapsed	Field Screening Instrument: OVM w/ 10.2 PID	Logged By: J. Zarnetske	Material Description	0-2': Wet, black, fine SAND and Silt, some organics, odor, sheen.			REMARKS	Reviewed by: J. M. M. M. M. M. Date: 12-11-00
B O B W-8	Department			End: 10/19/00			Blows per 6 Inches Craphic Log Log	ě			MATIONS	SAMPLING THE SERVING SAMPLING THE SERVING SAMPLING THE SERVING SAMPLING SAMPLIN
CAMP DRESSER & McKEE CDM So Hampathire Street Cambridge, MA 02139	Client: Boston Parks and Recreation Department Project Location: Riverway	Drilling Contractor: CDM Drilling Method/Blg: Hand Auger/	red, & Andy		linates:		Meadons Admed (serbont) (serbont) (a) (a) (a) (b) (b) (a) (b) (mqq)	24/20	ω C S S S S S S S S S		EXPLANATION OF ABBREVIATIONS	
CAMP DRESSER CAMP DRESSER CAMPANA Street Cambridge, MA 02139	Cilent: Boston Parks and R Project Location: Riverway	Drilling Contractor: CDM	Drillers: Jay, Fred, & Andy	Drilling Date: Start: 10/19/00	Borehole Coordinates:	ш z	eqyT Sample N Sample Sa	НА		006L/ZL 100 VW		OPE METHOD OPE

CAMP DRESSER & MCKEE CDM 50 Hampstire Street Cambridge, MA 02139	Sheet 1 of 1 BOREHOLE LOG RW-SED-19
Client: Boston Parks and Recreation Department Project Location: Riverway	Project Name: Muddy River Project Number: 1517-28449-SR-SEDSAMP.FIELD
Drilling Contractor: GEO-TEK	Surface Elevation (ft.):
Drilling Method/Rig: DTC/3* Split Spoon	Total Depth (ft.): 6
Drillers: Gien & Matt	Depth of Water (ft.): 2.0
Drilling Date: Start: 8/31/00 End: 8/31/00	Abandonment Method: Collapsed
Borehole Coordinates:	Field Screening Instrument: OVM w/ 10.2 PID
w z	Logged By: K Dillaway

	SAMP.FIELD					0.2 PID			and organic SILT,	and organic SILT,	, little sift, trace				17
Project Name: Muddy River	Project Number: 1517-28449-SR-SEDSAMP.FIELD	Surface Elevation (ft.):	Total Depth (ft.): 6	Depth of Water (ft.): 2.0	Abandonment Method: Collapsed	Field Screening Instrument: OVM w/ 10.2 PID	Logged By: K Dillaway	Meterial Description	0-2". Wet, very loose, black, coarse to fine SAND and organic SILT, trace gravel.	2-4: Wet, very loose, black, coarse to fine SAND and organic SILT, liftle clay, trace gravel.	4-6" Welt very loose, grey, fine SAND, some day, little sift, trace organics (native).	End of Boring at 6 feet BGS.		REMARKS	
								Stratum Designation							Sample ampler ore ore
rtmen					0			Graphic Log		*****				IONS	Augendrab California S California C C California C C California C C C C C C C C C C C C C C C C C C C
Depa			00U		3/31/0			Blows per 6 Inches	WOH	WOH	Push			EVIAT	AAS
creation		_	Split Sp		End:			Field Instrument Reading (mqq)	0.4	0.1	0:0			F ABBR	#40.859±86≥9
nd Re	rway	EO-TE	TC/3		31/00			Elex Depth (ft.)	0		ın	0	2	ONOL	
Parks	on: Rive	ctor: G	VRIg: D	& Matt	Start: 8	dinates:		Sample Hecovery (Inches)	24/24	24/22	24/18			EXPLANATION OF ABBREVIATIONS	ii Auger Auger Auger Y Y
Client: Boston Parks and Recreation Department	Project Location: Riverway	Drilling Contractor: GEO-TEK	Drilling Method/Rig: DTC/3* Split Spoon	Drillers: Glen & Matt	Drilling Date: Start: 8/31/00 End: 8/31/00	Borehole Coordinates:	ш	Sample						۵	Hollow Stem - Hollow Stem - Solid Stem - Hand Auger - Air Rouary Duel Tube R Foam Rotary - Reverse Cir - Cable Tod - Letting - Letting - Letting - Hollow - Letting - Letting - Hollow - Letting - L
Cile	Pro	Drill	Drill	Drille	Drill	Bore	z	Sample	SS	SS	SS				OPRELLI HSA AAA AAA OTR CT

BOREHOLE LOG RW-SED-20	Project Name: Muddy River Project Number: 1517-28449-SR-SEDSAMP.FIELD	Surface Elevation (ft.):	Total Depth (ft.): 4	Depth of Water (ft.): 2.5	Abandonment Method: Collapsed	Field Screening Instrument: OVM w/ 10.2 PID	Logged By: K Dillaway	Meterital Description	0-2: Wet, very loose, black, medium to fine SAND and organic SILT.	2-4: Wet, very loose, gray, fine SAND, some clay and silt (native).	End of Boring at 4 feet BGS.				HEMARKS	· ·
	<u>_</u>							Deatum Stratum Designation	*****	Narra var				 		S: ab Samples t Core t Core on the mpte
	artme				00			Graphic		-				 	 Nort	SAMPLING TYPES: AS AugerGrab Ser C.S California Sump NX 2.1 Rock Core NX 2.1 Rock Core APPROXIMATION CORP HP HP Hydro Punch HP Hydro Punch SS 5plit Spoon ST Shelby Tube Was Wash Sample OTHER
	Dep		000C		8/31/0			Blows per 6 Inches	WOM	Push					REVIA	AND THERE
	reattor		plit Sp		End:			Field Insurunent Pleid Schibsed (mqq)	0.8	0.0					ABBE	#\CB201##\$C
	nd Rec rway	EO-TE	TC/3"		31/00			Elex, Obpth (ft.)	0	1	ro.	1	01	15	 IO NOL	
itreet 02139	Parks a	tor: GE	Rig: D	Matt	tart: 8/	Ilnates:		Sample Recovery (Inches)	24/20	24/20				 	EXPLANATION OF ABBREVIATIONS	Auger uger rtary
CEMPINE Street Cambridge, MA 02139	Client: Boston Parks and Recreation Department Project Location: Riverway	Drilling Contractor: GEO-TEK	Drilling Method/Rig: DTC/3" Split Spoon	Drillers: Glen & Matt	Drilling Date: Start: 8/31/00 End: 8/31/00	Borehole Coordinates:	ш	Sample							EX	NG METHODS: Hollow Stem Auger Solid Stem Auger Hand Auger Hand Auger Air Rotary Dual Tube Rotary Nucl Broany Revene Circulation Cable Tool
80	Ciler	Drill	Drill	Drill	Drill	Bore	z	Sampline	SS	SS						DOMELL HISA HAA HAA HAA CT CT

BOREHOLE LOG	Project Name: Muddy River
RW-SED-21	Project Number: 1517-28449-SR-SEDS
D W MCKEE DW mpshire Street rdge, MA 02139	Boston Parks and Recreation Department Location: Riverway

LOG

BOREHOLE RW-SED-22

CAMP DRESSER & MCKEE

Sheet 1 of 1 SAMP.FIELD Surface Elevation (ft.): Total Depth (ft.): 4 Drilling Method/Rig: DTC/3" Split Spoon Drilling Contractor: GEO-TEK CAMP So Hami Cambrid Project L Client Drilli Bore

Illers: Glen & Matt	& Matt						Depth of Water (ft.): 2.0
Illing Date: Start: 8/31/00 End: 8/31/00	Start: 8	3/31/00	End: 8	//31/00			Abandonment Method: Collapsed
rehole Coordinates:	rdinates						Field Screening Instrument: OVM w/ 10.2 PID
ш							Logged By: K Dillaway
Sample	Sample Recovery (secont)	Elex. Depth (ft.)	Field Instrument Reading (mqq)	Blows per 6 Inches	Graphic	notengised	Material Description
	24/8	0	2.0	WOR			0-2: Wet, very loose, blackgrey, medium to fine SAND and organic sitt.
	24/20		0.3	WOH WOH			2-4: Wet, very loose, grey, fine SAND, some peat and day (native).
		ro.					End of Boring at 4 feat BGS.
		,					
		ē				-	
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		15					

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Date: |2.1/-60

Reviewed by: J. M. Muller

REMARKS

EXPLANATION OF ABBREVIATIONS

MUDDY RIVER BL MRRW GPJ CDM MA. GDT 12/13/00

Project Number: 1517-28449-SR-SEDSAMP.FIELD	Surface Elevation (ft.):	Total Depth (ft.): 4	Depth of Water (ft.): 3.5	Abandonment Method: Collapsed	Field Screening Instrument: OVM w/ 10.2 PID	Logged By: K Dillaway	Material Description	6-2: Wet, very loose, black/grey, medium to fine SAND and SILT, some clay, trace organics.	2-4: Wet, very loose, grey, fine SAND and CLAY, trace organics (naive).	End of Boring at 4 feet BGS.						REMARKS	
=							Log Stratum notengradion	×××××									SAMPLING TYPES: AS Augustical Sample As As Augustical Sample BX 1.5 Took Cover NX 2.1* Took Cover DP Hydro Punch SS SNK Spoon ST SNK Spoon ST SNK Spoon MAS NAME SAMPS
BILLIAN				00			Graphic	****					 		 	TIONS	d TYPES Auger/dra Zalkornia 5" Rock Beoprobe fydro Pun Rpik Spoo
den		nooc		8/30/(Blows per 8 Inches	WOM	Push							EVIA	AMPLIN SS XXXS S
end necreation bepartment erway	¥	Split Sp		End:			field Instrument field Instrument (mqq)	0.0	0.0							FABBF	0400Z0I005
and ne	GEO-TEK	TC/3"		/30/00			Elev. Depth (ft.)	0		S	, ,	9		15		ONOL	
Location: Rive		d/Rig: D	Glen & Matt	Start: 8	rdinates:		Sample Recovery (Inches)	24/24	24/22							EXPLANATION OF ABBREVIATIONS	R Auger Auger Sotary Y Dulation
	Drilling Contractor:	Drilling Method/Rig: DTC/3" Spilt Spoon		Drilling Date: Start: 8/30/00 End: 8/30/00	Borehole Coordinates:	ш	Sample									Ω	DRILLING METHODS: HISA + Hollow Stam Auger HA + Hand Auger HA Hand Auger AR Alf Rotary OTR - Dual Ticke Rotary FR - Foam Rotary MR - Mad Rotary MR - Mad Rotary MR - Rotary MR - Gabbe Tool Cloudation CT - Gabbe Tool
Project	Drillin	Drilling	Drillers:	Drillin	Bore	z	edyT eqyT	SS	SS								DARLIN SSSA

CAMP DRESSER & McKEE CDM 50 Hampshire Street Cambridge, MA 02139	Sheet 1 of 1 BOREHOLE LOG RW-SED-23
Client: Boston Parks and Recreation Department Project Location: Riverway	Project Name: Muddy River Project Number: 1517-28449-SR-SEDSAMP, FIELD
Drilling Contractor: GEO-TEK	Surface Elevation (ft.):
Drilling Method/Rig: DTC/3" Split Spoon	Total Depth (ft.): 8
Drillers: Glen & Matt	Depth of Water (ft.): 3.5
Drilling Date: Start: 8/30/00 End: 8/30/00	Abandonment Method: Collapsed
Borehole Coordinates:	Field Screening Instrument: OVM w/ 10.2 PID
w z	Logged By: K Dillaway

_		1	1	_	_	_	_	_				_						
Sheet 1 of 1	BOREHOLE LOG RW-SED-23	Project Name: Muddy River Project Number: 1517-2849-SR-SEDSAMP.FIELD		Surface Elevation (ft.):	Total Depth (ft.): 8	Depth of Water (ft.): 3.5	Abandonment Method: Collapsed	Fleid Screening Instrument: OVM w/ 10.2 PID	Logged By: K Dillaway	Material Description	0-2: Wet, very loose, black, coarse to fine SAND and organic SILT.	2-4; Wet, medium dense, black-grey, coarse to fine SAND, trace organics. Organic odor.	4-6". Wet, loose, black-grey, coarse to fine SAND, trace gravel and brick.	6-8: Wei, medium dense, grey, fine SAND and SILT, some clay, trace gravel (rative).	End of Borling at 8 feet BGS.		REMARKS	
	ω ξ									notangiaed								Sample Sampler Core Core
		tment								Graphic Log							SNO	60 4
		Depar			LOC		//30/00			Blows per 6 Inches	WOH	WOH 4	WOR 5	N 4 1 0			EVIATI	AMPLING Can 1.5 1.5 1.6 1.6 1.6 1.6 1.6 1.6 1.6 1.6 1.6 1.6
田田		reation		_	Split Spi		End: 8			fnemuritani bleii gnibaeA (mqq)	1.4	0.0	0.0	0.0			ABBR	2 < 0 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5
% McK		nd Rec		O-TE	TC/3"		30/00			Elex (ft.)	0	1	100	1 1	0	2	IO NOL	
SSER	Street 1 02139	Parks a		ctor: G	VRIg: D	& Matt	Start: 8/	dinates:		Sample Recovery (inches)	24/12	24/18	24/22	24/23			EXPLANATION OF ABBREVIATIONS	Auger otery otery
CAMP DRESSER & MCKEE	CDPM 50 Hampshire Street Cambridge, MA 02139	Client: Boston Parks and Recreation Department Project Location: Bivenway		Drilling Contractor: GEO-TEK	Drilling Method/Rig: DTC/3" Split Spoon	Drillers: Glen & Matt	Drilling Date: Start: 8/30/00 End: 8/30/00	Borehole Coordinates:	ш	Sample							ă	NG METHODS Hollow Stem Alond Auger Air Rotary Duel Tube R Count Rotary Mud Rotary Reverse Girc Cable Tool Cabl
C	28 0	Cilen		<u></u>	Drill	Drille	Drill	Bore	z	Semple	SS	SS	SS	SS				HASA HERE

Reviewed by: J. M. M. Mullan Date: 12-11-00

BOREHOLE LOG RW-SED-24	Project Name: Muddy River Project Number: 1517-28449-SR-SEDSAMP.FIELD	Surface Elevation (ft.):	Total Depth (ft.): 6	Depth of Water (ft.): 4.0	Abandonment Method: Collapsed	Field Screening Instrument: OVM w/ 10.2 PID	Logged By: K Dillaway	Material Description	0-2: Wet, very loose, black, coarse to fine SAND and organic SILT.	2-4∵As above.		4-6: Wet, very loose, black, fine SAND, trace gravel and clay (native).	End of Boring at 6 feet BQS.					REMARKS	
ω ≩								mutert2 notengised							· · · · · · · ·				Sampler res
	tment							Graphic Log										SNO	Pulling TYPES: Augurdinab S California Sa 1.5* Rock Co 2.1* Rock Co Geographe Hydro Phon Spili Spon Shelby Tube Wash Samp) HR: Above Gross
	Depart		noc		/30/00			Blows per 6 Inches	WOR	WOR	10	400						EVIATI	88AMPLING CCS Cal CCS Cal BX -1.5 BX -1.5 GP Cal GP GG GP GG GP GG GB SS Spl SS Spl Spl SS Spl SS Sp
4	reation		split Spo		End: 8			Field Instrument Reading (mqq)	0.0		K Z	0.0						ABBRI	SAM CCS CCS CCS CCS CCS CCS CCS CCS CCS CC
M M M M M M M M M M M M M M M M M M M	nd Rec	O-TE	rc/3"		30/00			Elex. Depth (ft.)	0	-1-	1	w		0-		15	1-1-1	IO NOL	
Street (02139	Parks a	tor: GE	/Rig: D	& Matt	start: 8/	dinates:		Sample Recovery (Inches)	24/16		24/1	24/18		1				EXPLANATION OF ABBREVIATIONS	ODS: Stern Auger Stern Auger Uger Uger Obe Rotary Ober Stern Stern Ober Ober Ober Ober Ober Ober Ober Ober
COMPOSED A MONEY SO Hampshire Street Cambridge, MA 02139	Client: Boston Parks and Recreation Department Project Location: Riverway	Drilling Contractor: GEO-TEK	Drilling Method/Rig: DTC/3" Spilt Spoon	Drillers: Glen & Matt	Drilling Date: Start: 8/30/00 End: 8/30/00	Borehole Coordinates:	ш	Sample										EX	NG METHODS: Hollow Stem As Boild Stem As Boild Stem As Hand Auger Air Rotary Dual Tube Ro Foam Rotary Mud Rotary Mud Rotary Reverse Circu Cable Tool Jetting
0.80	Clien	Drilli	Drilli	Drille	Drilli	Bore	2	Sample eqyT	SS		2	SS							HISA HISA HISA HISA HISA HISA HISA HISA

CAMP DRESSER & MCKEE CAMP DRESSER & MCKEE SO Hampshire Street Cambridge, MA 02139	BOREHOLE LOG RW-SED-25
Client: Boston Parks and Recreation Department Project Location: Riverway	Project Name: Muddy River Project Number: 1517-28449-SR-SEDSA
Drilling Contractor: GEO-TEK	Surface Elevation (ft.):
Drilling Method/Rig: DTC/3" Split Spoon	Total Depth (ft.): 4
Drillers: Glen & Matt	Depth of Water (ft.): 4.0
Drilling Date: Start: 8/30/00 End: 8/30/00	Abandonment Method: Collapsed
Borehole Coordinates:	Field Screening Instrument: OVM w/ 10.2

eet 1 of 1

INESSER & MCKEE	BOREHOLE LOG RW-SED-25
ton Parks and Recreation Department	Project Name: Muddy River
ation: Riverway	Project Number: 1517-28449-SR-SEDSAMP.FIE
hractor: GEO-TEK	Surface Elevation (ft.):
hod/Rig: DTC/3" Split Spoon	Total Depth (ft.): 4
en & Matt	Depth of Water (ft.): 4.0
e: Start: 8/30/00 End: 8/30/00	Abandonment Method: Collapsed
oordinates:	Field Screening Instrument: OVM w/ 10.2 PID
	Logod By: K Dillaway

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Meterial Description	0-2: Wet, very loose, black-grey, coarse to fine SAND, some organics.	2-4: Wet, very loose, grey fine SAND and SILT, trace organics (native).	End of Boring at 4 feet BGS.			REMARKS
mulett2 noitsagieseQ					 	
Graphic Log						SNO
Blows per 6 Inches	WOM	HSDd				EVIATI
Field Instrument Reading (mpq)	0.9	0.0				FABBR
Elex. Depth (ft.)	0		NO.	 9	25	 ONOL
Sample Recovery (Inches)	24/24	24/12				 EXPLANATION OF ABBREVIATIONS
Sample						Ĭ

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Reviewed by: J. McMuller Date: 12 1/50

DRILL HSA SSA AAA DTA DTA DTC

NDDA MAER BE MERN GES COM MA. GDT 12/13/00

BOREHOLE LOG RW-SED-26	Project Name: Muddy River Project Number: 1517-28449-SR-SEDSAMP.FIELD	Surface Elevation (ft.):	Total Depth (ft.): 4	Depth of Water (ft.): 2.5	Abandonment Method: Collapsed	Field Screening Instrument: OVM w/ 10.2 PID	Logged By: K Dillaway	Material Description	0-2: Wet, very losse, black, medium to fine SAND and organic SILT.	2-4: Wel, very loose, grey, fine SAND and SILT, trace organics (peat) (native).	End of Borling at 4 feet BGS.				REMARKS	
ω _∞	te							Pod mulands notiangiaed	20000	×						S: Sample Sample Core Core noch on moth mpte
	epartmer		<u></u>		00/00			Elows per 6 Inches Graphic	WOH WOH	WOW			<u></u>		 EXPLANATION OF ABBREVIATIONS	SAMPLING TYPES. AS A Augendrab Sample AS A Layendrab Sample CS California Sample KX 1.1* Flock Core NX 2.1* Flock Core GP Geogrobe HP Hydro Fluch SS Spill Shoon T Shelly Tube W S W S W S A
	eatlon D		DTC/3" Split Spoon		End: 8/3			Inemuntani bieiii gnibeefi (mqq)	6.0	b.0		 			 ABBREV	SAME CCS CCS CCS SCS SCS WAR
	and Reci	EO-TEK	TC/3" S		/30/00			Elev. Oepth (ft.)	0		40	 02		in in	 TION OF	
Street A 02139	Parks a	ctor: G	d'Rig: D	& Matt	Start: 8	dinates:		Sample Recovery (Inches)	24/20	24/10					PLANA	METHODS: Hollow Stem Auger Solid Stem Auger Ar Rolary Ar Bolary Doul Tube Rotary Mud Rotary Mud Rotary Water Rotary Mud Rotary Stem Stempt Circlaston Cable Tool
Cambridge, MA 02139	Client: Boston Parks and Recreation Department Project Location: Riverway	Drilling Contractor: GEO-TEK	Drilling Method/Rig:	Drillers: Glen & Matt	Drilling Date: Start: 8/30/00 End: 8/30/00	Borehole Coordinates:	ш	Sample							X	NG METHODS: Hollow Stem Auger Solid Stem Auger Hand Auger Air Rotary Dual Tube Rotary Foam Rotary Mud Rotary Mud Rotary Cable Tool
28 2	Cller	Drilli	Dri	Drille	Drilli	Bore	z	Semple	SS	SS						DAILLIE SSA SSA SSA SSA SSA SSA SSA SSA SSA SS

LE LOG	Project Name: Muddy River Project Number: 1517-28449-SR-SEDSAMP.FIELD	ft.);		. 2.5	lod: Collapsed	Field Screening Instrument: OVM w/ 10.2 PID	way	Material Description	0-2: Wet, very loose, black, medium to fine SAND and organic SILT.	48: Wet, very loose, fine SAND and SILT, some organics (native).		S.S.			REMARKS	
BOREHOL RW-SED-27	Project Name: Muddy River Project Number: 1517-2844	Surface Elevation (ft.):	Total Depth (ft.): 4	Depth of Water (ft.): 2.5	Abandonment Method: Collapsed	Field Screening Inst	Logged By: K Dillaway		0-2': Wet, very loose, blac	4-6': Wet, very loose, fine	Coor.	End of Boring at 4 feet BGS.				
ши	ent							Graphic Log Stratum Designation	***	×				 	<u>s</u>	PES: Grab Sampler nie Sampler oct Core oct Core Punch Poron Tube Sample
	Boston Parks and Recreation Department Location: Riverway		noc		/30/00				MOW HOW	WOR					 EXPLANATION OF ABBREVIATIONS	MPLING TYPES: Augenfarb Californie St. 1.5* Flock C. 2.1* Flock C. Rock C. 2.1* Flock C. Split Spron Split Spron Shaby Tube Warn Sund Warn Shaby Tube Warn Sand Warn Shaby Sang
	reation	¥	Split Spo		End: 8/30/00			Field Instrument BribseA (mqq)	1.9		9.0				ABBRE	A A B A K A K A K A K A K A K A K A K A
	and Rec	GEO-TEK	TC/3"		//30/00			Elex. Oepth (ft.)	0			ın	6	10	TION OI	
Street A 02139	Parks on: Riv	ctor: G	I/Rig: [Glen & Matt	Start: 8	dinates		Sample Recovery (Inches)	24/14		24/18				PLANA	Auger Luger Chary
Cambridge, MA 02139	Client: Boston Parks and R Project Location: Riverway	Drilling Contractor:	Drilling Method/Rig: DTC/3* Split Spoon	Drillers: Glen	Drilling Date: Start: 8/30/00	Borehole Coordinates:	ш	Sample							EX	MG METHODS: Wollow Stem A solid Stem A rand Auger Air Rotery Dual Tube R Mad Rotery Mad Rotery Reverse Circ. Cable Tool
Combridge, MA 02139	Client: Project	Drilli	Drill	Dri	Drill	Bore	z	elqme2 eqvT	SS		SS		 			DAULLI HSA HAA HAA HAA HAA HAA CT

BOREHOLE LOG RW-SED-28	Project Name: Muddy River Project Number: 1517-28449-SR-SEDSAMP FIELD	Surface Elevation (ft.):	Total Depth (ft.): 6	Depth of Water (ft.): 2.5	Abandonment Method: Collapsed	Logical By: K Dillaway	Material Description	0-2": Wet, very loase, black, medium to fine SAND and organic SILT.	2-4: A above.	4-8: Wet, loose, gray, fine SAND, little silt, trace gravel and shell fragments (native).	End of Borting at 6 feet BGS.				REMARKS	Description of MCM. // Description
ω≩							Stratum notisegised									Sample sample or ore ore
	tment						Graphic Log								SNO	VG TYPES: Auger/Grab Cationia 8.1.5* Rock Cd 2.1* Rock Cd 2.1* Rock Cd Spill Spoon Shalby Tube Weah Samp
	Depar		noc		/29/00		glows per	WOH	WOR	Push 2 3					MATI	3
H.	reation	¥	Split Spo		End: 8		Inemurizal bleifi gaibseff (mqq)	0.1	0.0	0.0					ABBRE	SAMA BRX BRX BRX BRX BRX BRX BRX BRX BRX BRX
N N N N N N N N N N N N N N N N N N N	nd Rec	O-TE	TC/3"		29/00		Elev. Depth (ft.)	0		ro e	-	00	-	μΩ	ONO	
Street 02139	Parks a	ctor: GE	VRIg: D	& Matt	start: 8/	THI BLOSS	Sample Recovery (Inches)	24/22	24/24	24/18	1 1				EXPLANATION OF ABBREVIATIONS	ion Auger in Auger of Section of Circulation
COMP DAESSER & MONEE COMPANY Street Cambridge, MA 02139	Client: Boston Parks and Recreation Department Project Location: Riverway	Drilling Contractor: GEO-TEK	Drilling Method/Rig: DTC/3" Split Spoon	Drillers: Glen & Matt	Drilling Date: Start: 8/29/00 End: 8/29/00	Borenois Coordinates:	Sample								EXI	Holiow Stem Al-Holiow Stem Al-Holiow Stem Al-Hond Auger Al-Hond Auger Al-Hond Auger Al-Hondary Foam Rotary Mud Rotary Mud Rotary Cable Tool Jetting Darking Darking Darking Burden Auger Auger Auger Auger Auger Auger Auger
5 2 2 3	Cilen	Orilli	Drill	Orig	Drill		Sample	SS	SS	SS						HSA BSA HAA HAA OTR FR OTR CCT

MCKEE Shapt 1 of 1	BOREHOLE LOG RW-SED-29	Clent: Boston Parks and Recreation Department Project Name: Muddy River Project Location: Riverway Project Location: Riverway		olit Spoon		Drilling Date: Start: 8/29/00 End; 8/29/00 Abandonment Method: Collapsed		Logged By: K Dillaway	Field Instrument Field Instrument Programment Company (ppm) Blowe per 6 Inches Company	Push O-2": Welt, very loase, bleck, medium to fine SAND and organic SiLT, some organics. Is	Plush	0.0 rusii Bottom 10*: Wet, very loose, grey, PEAT and CLAY, some fine sand			luo .
E E		reation Dep		Split Spoon		End: 8/29/0			Heading (ppm)		Push				
& McK		and Rec	FO-TE	OTC/3"	5	3/29/00			Depth (ft.)	0			w I	10	 n i
SSER	Street	Parks	ctor: G	J/Ria:	& Matt	Start: 8	dinates		Sample Recovery (inches)	24/20		24/18			
CAMP DRESSER & MCKEE	CDDN 50 Hampshire Street Cambridge, MA 02139	Client: Boston Parks and R Project Location: Riverway	Drilling Contractor: GEO-TEK	Ina Method	Drillers: Glen & Matt	ling Date:	Borehole Coordinates:	ш	Sample						
0	30	Cile	Dri	Drill	P		Bor	z	Type	SS		SS			

LOG

BOREHOLE RW-SED-30

CAMP DRESSER & MCKEE

Project Number: 1517-28449-SR-SEDSAMP.FIELD

Surface Elevation (ft.): Total Depth (ft.): 10

Project Name: Muddy River

Client: Boston Parks and Recreation Department

CODM 50 Hampshire Street Cambridge, MA 02139 Fleid Screening Instrument: OVM w/ 10.2 PID

Logged By: K Dillaway

Abandonment Method: Collapsed

Drilling Date: Start: 8/29/00 End: 8/29/00

Borehole Coordinates:

Drilling Method/Rig: DTC/3" Split Spoon

Drillers: Glen & Matt

Project Location: Riverway
Drilling Contractor: GEO-TEK

Depth of Water (ft.): 2.5

) and GRAVEL, trace	toe brick and gravel.				1 1 1				Can 1. 0. 1. 00
Material Description	0-2: Welt, very loose, grey, coarse to fine SAND and GRAVEL, trace organics.	2-4: Wet, loose, black, coarse to fine SAND, trace brick and gravel.	4-6". As above.	6-8: Top 3: As above. Bottom 3: PEAT.	8-10': PEAT (native).	End of Boring at 10 feet BGS.		U Mag		Benjamed hu. M.C.M. 16
Log Stratum Designation			******						9AMPLING TYPES: AMPLING TYPES: California Sample X 1,5 Rock Coar California Sample X 1,5 Rock Coar California Sample X 1,5 Rock Coar California Sample Physics Prock S 5,5 Rock S 7,5 Rock	iround
6 Inches	E								4G TYPE Auger/Galfomia 1.5° Rocc 2.1° Rocc 2.1° Rocc 3.1° Rocc 3.1	Above Ground
Piebel Instrument pleid (mgq)	0.4 7	0.0	0.0	0.0	0.0			EXPLANATION OF ABBREVIATIONS	BAMPU CSS CSS CSS CSS CSS CSS CSS CSS CSS CSS	AGB .
Elev. Depth (ft.)	0	 	ro.	 	 	2	5	NO NO		
Sample Recovery (Inches)	24/8	24/12	24/4	24/6	24/4	1 1		LANATIO	uger ger ger lagon	Dujan
Sample								EXP	DRILLING METHODS: 145A - Hollow Stam Auger 145A - Hand Auger AR - Hand Auger AR - Air Rotary DTR - Dual Tube Rotary FR - Foum Rotary RR - Muth Rotary RC - Cable Tool TC - Cable Tool TC - Lesting Tool	Driving Orli Through Casing
Sample	SS	SS	SS	SS	SS				DRILLING HSA - SSSA - HAA DTR - MAR - CT -	

Reviewed by: T. M. M. L. L. Date: 12-11-00

REMARKS

EXPLANATION OF ABBREVIATIONS

NUDDY RIVER BL MRRW GPJ CDM MA. GDT 12/13/00

BOREHOLE LOG RW-SED-32	Project Name: Muddy River Project Number: 1517-28499-SR-SEDSAMP.FIELD	Surface Elevation (ft.): Total Denth (ft.): 4		Abandonment Method: Collapsed	Field Screening Instrument: OVM w/ 10.2 PID	Logged By: K Dillaway	Material Description	0-2: Wei, very kose, black-grey, medium to fine SAND and organic SILT, some clay.	2.4: Wet, very loose, grey, fine SAND and CLAY, trace organics (native). Strong organic odor.	End of Boring at 4 feet BGS.			REMARKS	
ω ∉							mutert2 notisngtee0					 		SAMPLING TYPES: R Augendrab Semple CS California Semple RX 15 Rook Cons RX 2.1 Rook Cons RX 2.1 Rook Cons RX 2.1 Rook Cons RX 2.1 Rook Cons RX 1.5 Rook Cons R
	rtment						Graphic						SNO	NG TYPES: Auger/Grab Serry Cellorna Serry 1.5* Rock Core 2.1* Rock Core Geoprobe Hydro Punch Spit Spoon Sheby Tube Wash Sample
	Depa	100		1/29/00			Blows per 6 Inches	WOR	WOM				EVIAT	SAMPLING CS CA CS CA CS CA CS CA CA CS CA CA CS CA CS CS CS CA CS CS CS CS CS CS CS CS CS CS C
	reation	Split Spir		End: 8			Field Instrument Reading (mqq)	0:0	0.0				ABBR	942552222222
	ind Rec	EO-TE		29/00			Elev. Depth (ft.)	0		ro.	9	ro.	TION OF	
Street 4 02139	Parks a	ictor: Gi	& Matt	Start: 8	dinates:		Sample (Inches)	24/22	24/24				EXPLANATION OF ABBREVIATIONS	E Auger Auger Auger Auger Auger Auger Auger Culeion Culeion
CDM 50 Hampshire Street Cambridge, MA 02139	Client: Boston Parks and Recreation Department Project Location: Riverway	Drilling Contractor: GEO-TEK	Drillers: Gien & Matt	Drilling Date: Start: 8/29/00 End: 8/29/00	Borehole Coordinates:	ш	Sample						i iii	ING METHODS: Holdow Stam Auger Solid Stam Auger Hand Auger Air Rotary Fearm Rotary Fearm Rotary Fearm Rotary Rud Mud Rotary Reverse Circulation Cable Tool
್ಟ್ ಜ್ಞಾ	Clier	Drill	Drille	Drill	Bore	z	Sample	SS	SS					DARLI HAA HAA HAA MAR MAR MAR CT

Sheet 1 of 1	5 0	9-SR-SEDSAMP.FIELD				pasd	OVM w/ 10.2 PID		rial blom	dium to fine SAND and organic	D and CLAY, trace peat (native).		DENADIVE	
	BOREHOLE RW-SED-33	Project Name: Muddy River Project Number: 1517-28449-SR-SEDSAMP.FIELD	Surface Elevation (ft.):	Total Depth (ft.): 4	Depth of Water (ft.): 3.5	Abandonment Method: Collapsed	Field Screening instrument: OVM w/ 10.2 PID	Logged By: K Dillaway	Material Designation	0-2: Wet, very loose, black-grey, medium to fine SAND and organic SILT, some clay, trace peat.	2-4: Wet, very loose, grey, line SAND and CLAY, trace peat (native). Strong organic odor.	End of Boring at 4 feet BGS.		
KEE		Client: Boston Parks and Recreation Department Project Location: Riverway	EK	* Split Spoon		End: 8/29/00			Field Instrument Reading (ppm) Blows per 6 Inches 6 Inches Log Log	WOW 8.0	0.0		FXPI ANATION OF BABBIE FUATIONS	SAMPLING TYPES: A SAMPLING TYPES: C Cupperform Sample NX 12 F Road Can WX 2.1 Road Can WX 2.1 Road Can HP HOTO Plant Sample NX 18 Sample NX 18 Sample NX 18 Wash Sample OTHER:
CAMP DRESSER & MCKEE	50 Hampshire Street Cambridge, MA 02139	Client: Boston Parks and R Project Location: Riverway	Drilling Contractor: GEO-TEK	Drilling Method/Rig: DTC/3" Split Spoon	len & Matt	Drilling Date: Start: 8/29/00 End: 8/29/00	oordinates:		e pe Bandin Servini) (fr.)	24/18	24/24 -	c c t	EXPI ANATION	METHODS: Seeding Stem Auger Sould Stem Auger Markend Auger Markend Auger Markend Auger Markend Auger Town Rotary Marken Rotary Revense Circulation Cabbe Tool
CAMP D	50 Hampst Cambridge	Cilent: Bos Project Loc	Drilling Cor	Drilling Met	Drillers: Glen & Matt	Drilling Dat	Borehole Coordinates:	w z	edy/T edy/T Sumb egrag	SS	SS			DHILLING METHOD SIGN SIGN SIGN SIGN SIGN SIGN SIGN SIGN

BOREHOLE LOG RW-SED-34	Project Name: Muddy River Project Number: 1517-28449-SR-SEDSAMP FIELD	Surface Elevation (ft.):	Total Depth (ft.): 4	Depth of Water (ft.); 2.5	Abandonment Method: Collapsed	Fleld Screening Instrument: OVM w/ 10.2 PID	Logged By: K Dillaway	Material Description	0.2': Wet, very loose, black-grey, medium to fine SAND and organic SILT, some clay, trace peat.	Z-4: Wet, very loose, grey, fine SAND and CLAY, trace peat (native). Strong organic oddr.	End of Boring at 4 feet BGS.						REMARKS	
™ ≥ 0	1							Stratum	****									E Sample b Sample Core Core core
	ırtmer				0			Graphic									ONS	NG TYPES: Auger/Grab Sarry 1.5" Rock Core 2.7" Rock Core Geoprobe Hydro Punch Spill Spoon Spill Spoon Spill Spoon Wash Sarrolia
	Depa		noo		3/28/0			g luches Blows per	WOR	WOR							EVIAT	SAMPLING CS CS CA BX 112 BX 122 BX 123 BX 12
	reation		spilit Sp		End: 8/28/00			Field Instrument Reading (ppm)	0.0	0.0							ABBR	242522222
	and Rec	EO-TE	TC/3" 8		/28/00			Elex. Depth (ft.)	0		ro.	1	9	1 1	15	1 1	TON OF	
Street 1 02139	Parks and Hive	ctor: G	VRIg: D	& Matt	Start: 8	dinates:		Sample (Inches)	24/24	24/24							EXPLANATION OF ABBREVIATIONS	DS: tem Auger m Auger ger ger e Rotary tary tary tary
CDM 50 Hampshire Street Cambridge, MA 02139	Client: Boston Parks and Recreation Department Project Location: Riverway	Drilling Contractor: GEO-TEK	Drilling Method/Rig: DTC/3" Spilt Spoon	Drillers: Glen & Matt	Drilling Date: Start: 8/28/00	Borehole Coordinates:	ш	Sample									EX	HOLOW Stem A-Hollow Stem A-Hollow Stem A-Hollow Stem A-Hollow Auger A-Hollow A-Hollow A-Hollow B-Hollow B-Hollo
នលី	Cilent: Project	Drill	Drill	Drill	Drill	Bore	z	Sample	SS	SS								DRILLIN HSA . SSA . HAA . DTR . FR .

Sheet 1 of 1 BOREHOLE LOG RW-SED-35	Project Name: Muddy River Project Number: 1517-28449-SR-SEDSAMP.FIELD	Surface Elevation (ft.):	Total Depth (ft.): 8	Depth of Water (ft.): 3.5	Abandonment Method: Collapsed	Field Screening Instrument: OVM w/ 10.2 PID	Logged By: K Dillaway	Material Description	0-2: Wet, very loose, black, medium to fine SAND and organic SILT.	2-4: Wet, very loose, black, fine SAND and CLAY (native).	4-6; Wet, very loose, gray, fine SAND and CLAY (native).	End of Boring at 6 feet BGS.				REMARKS	Raviewed by: 3m Grunder Date: 1211-00
ω ^κ								Statum notisegesed									Sample ore ore le
	ment							Graphic Log								SNC	Mg TYPES: Calionia Sa Calionia Sa Ti S Rock Cc 2 1 Rock Cc Geoprobe Hydro Punch Spill Spoon Shaby Tube Wash Samp
	Depart		uo		28/00			Blows per 6 inches	WOR	WOR	Push					VIATION	2
m	reation	¥	Spllt Spo		End: 8			tnemintani bleii gribeefi (mqq)	0.3	A N	0.0					EXPLANATION OF ABBREVIATIONS	B A A A A A A A A A A A A A A A A A A A
₩ W	nd Rec	O-TE	rc/3"		28/00			Elex. Oepth (ft.)	0	1	w		2	100	, , ,	ION O	
SSER Street	Parks a	ctor: GE	VAIg: D	& Matt	Start: 8/	dinates:		Sample (Inches)	24/24 -	24/18	24/24			 		PLANAT	Auger uger otery utelion Casing
CAMP DRESSER & MCKEE COMPOSITION STREET Cambridge, MA 02139	Client: Boston Parks and Recreation Department Project Location: Riverway	Drilling Contractor: GEO-TEK	Drilling Method/Filg: DTC/3" Split Spoon	Drillers: Glen & Matt	Drilling Date: Start: 8/28/00 End: 8/28/00	Borehole Coordinates:	ш	Sample								EXI	Hollow Stem A Hollow Stem A Hollow Stem A Hand Auger Air Rotary Dual Tube Re Foarm Rotary Reverse Circ Cable Tool Cable Tool Cable Tool Drifting Drifting Drifting
S 9 88	Clien	Drilli	Drilli	Drille	Drilli	Bore	z	Sample Sqy1	SS	SS	SS						DRMLLIN HSA - SSA - SSA - DITR - CT - DITC -

BOREHOLE LOG RW-SED-36	Project Name: Muddy River Project Number: 1517-28449-SR-SEDSAMP.FIELD	Surface Elevation (ft.): Total Depth (ft.): 4	Depth of Water (ft.): 3.5	Abandonment Method: Collapsed	Fletd Screening Instrument: OVM w/ 10.2 PID	Logged By: K Dillaway	Material Description	0-2: Wet, very loose, black, medium to fine SAND and organic SILT, little clay.	2-4: Top 4": As above.	Bottom 14": Wet, very loose, grey, fine SAND and CLAY (native). Strong organic odor.	End of Boring at 4 feet BGS.			HEMARKS	
B (int						Log Stratum Designation	****						 S	BAMPLING TYPES: As Augment and State of
	ерапте	-		58/00			Blows per 6 Inches Graphic	HOW HOW	₩. . <mark>g</mark>			 		 VIATION	SAMPLING TYPES: A8 - Augericinal EX - California EX 1.5 Rock NX 2.1 Rock NX 2.1 Rock NY 2.1 Rock HP Hydor Pure SS Split Spoon SS Split Spoon W8 - Wash Sam OTHER.
	reation D	Sport Sport		End: 8/2			finemuntani bleH gnibseH (mqq)	0.0	-	0.0			 	EXPLANATION OF ABBREVIATIONS	S S S S S S S S S S S S S S S S S S S
	nd Rec	E0-TE		28/00			Elay, Oepth (ft.)	0			ro.	 0	5	TION O	
Street A 02139	Parks a	ctor: Gl	& Matt	Start: 8/	dinates:		Sample Recovery (Inches)	24/20		24/18				PLANA	Auger Auger Auger Aotary y oulation
Cambridge, MA 02139	Client: Boston Parks and Recreation Department Project Location: Riverway	Drilling Contractor: GEO-TEK	Drillers: Glen & Matt	Orilling Date: Start: 8/28/00 End: 8/28/00	Borehole Coordinates:	ш	Sample							l a	VG METHODS: Hollow Stern Auger Sold Stern Auger Alt Rotary Dual Tube Rotary Mud Rotary Mud Rotary Reverse Circutation Cable Tool
So t	Cilen	Drillin	Drille	Drillir	Bore	z	Sample	SS		SS					SSA SSA SSA SSA SSA SSA SSA SSA SSA SSA

REHOLE LOG	Project Name: Muddy River Project Number: 1517-28449-SR-SEDSAMP.FIELD	Surface Elevation (ft.):	Total Depth (ft.): 4	Depth of Water (ft.): 2.5	Abandonment Method: Collapsed	Flekd Screening Instrument: OVM w/ 10.2 PtD	Logged By: K Dillaway	Marerial Description	0-2: Wel, very loose, black, medium to fine SAND and organic SILT, little clay.	2-4: Wet, very loose, black, fine SAND and CLAY, trace organics (naive). Organic odor.	End of Boring at 4 feet BGS.			REMARKS	
BORE RW-SED-37								mulsvt2 notisngised	O-5	2-4 (na	m E		 		SAMPLING TYPES: Augustine Sample CS Augustine Sample CS California Sample CS TS TS TBOAL Core NX A. TS TBOAL Core NX A. TBOAL Core NY A. TBOAL Core NY S. TS TBOAL CORE TS T
	rtment				0			Graphic god					 	SNOI	443 TYPES: Auger/Grab Samp 1.5* Rock Core 2.1* Rock Core Geoprobe Hydro Punch Spill Spoon Shalby Tube
	Вера		noon		8/28/0			Blows per 6 Inches	WOH	WOH				REVIAL	IX . 2
4	reation		Split Sp		End:			tnernintani bleiii gnibeeA (mqq)	1.6	0.0				F ABBI	W. C. B. Z. C. Z. W. W. J. C.
2	nd Rec	O-TE	TC/3"		28/00			Elex. Obpth (ft.)	0		ın	02	15	ONOL	
Street 02139	Parks a	ctor: GE	VRIg: D	& Matt	Start: 8/	dinates:		Sample Recovery (Inches)	24/22	24/20				EXPLANATION OF ABBREVIATIONS	E Auger Auger Ottry Y
COMPLETE STREET SO Hampshire Street Cambridge, MA 02139	Client: Boston Parks and Recreation Department Project Location: Riverway	Drilling Contractor: GEO-TEK	Drilling Method/Rig: DTC/3" Split Spoon	Driffers: Glen & Matt	Orilling Date: Start: 8/28/00 End: 8/28/00	Borehole Coordinates:	ш	Sample						ũ	HOIOW Stern Auge Food Stern Auge Sold Stern Auger Air Rollanyer Four Rotery Mud Rotery Mud Rotery Reverse Circulatio Cable Tool
2 6 8 8	Client	Drillian	Drillin	Driffe	Orillin	Boret	z	Sample	SS	SS					DRULLIN HSA SSSA SSSA HAA NAR OTTR

BOREHOLE LOG RW-SED-38

CAMP DRESSER & MCKEE

Project Number: 1517-28449-SR-SEDSAMP.FIELD

Surface Elevation (ft.): Total Depth (ft.): 6

Project Name: Muddy River

Cilent: Boston Parks and Recreation Department

50 Hampshire Street Cambridge, MA 02139 CDM

Fleid Screening Instrument: OVM w/ 10.2 PID

Logged By: K Dillaway

Abandonment Method: Collapsed

Drilling Date: Start: 8/28/00 End: 8/28/00

Borehole Coordinates:

ш

Drilling Method/Rig: DTC/3" Split Spoon

Drillers: Glen & Matt

Drilling Contractor: GEO-TEK Project Location: Riverway

Depth of Water (ft.): 2.5

Material Description	0-2: Wet, very loose, black, medium to line SAND and organic SILT. Clay present in tip of spoon.	2-4": Wet, very loose, black, SILTY CLAY, trace organics (native).	4-6: Wet, very loose, grey, fine SAND and CLAY (native). Organic odor:	End of Boring at 8 feet BGS.					REMARKS		Reviewed by: 3 M. M. Co. L. Date: 12-11.00
Graphic Log Stratum Designation	5 5 5	72	4-6: odor.	ű.					SNS	NG TYPES: Adjusticate Sample Adjusticate Sample 1.15 Resk Core Geologica 1.17 Resk Core Geologica Hydro Purech Spill Spoon Sharby Libe Sharby Libe Wann Sample	Above Ground
	WOR	WOR	Push						EXPLANATION OF ABBREVIATIONS	SAMPLING TYPES: AS - Augur/Grab S CS - California Sa EX - 1.5 Floot Co NX - 2.1 Floot Co NX - 2.1 Floot Co NY - 2.1 Floot Co S S S S S S S S S S S S S S S S S S S	THER: G8 · Abo
Ineminisal bleii PribeeA (mqq)	0.3	0:0	0:0						FABBE	0400Z0I005	∪ ∢
Elev. Depth (ft.)	0		ıo	1	10	1 1	15	, , , ,	ONOL		
Sample Gluches)	24/24	24/24	24/24						PLANA	Auger Auger Auger Auger Culation	n Casing
Sample									ă	DRILLING METHODS: HISA - Hollow Stam Auget HISA - Hollow Stam Auget Hand Auget AR - Bould Stem Auget AR - Air Polating DTR - Dual Tube Rolany HIR - Mind Rol	Jetting Driving Drill Through Casing
Sample SqyT	SS	SS	SS							DAILLI HSA SSA HAA HAA DTR FR CT	DTC

CAMP DRESSER & MCKEE CDN 50 Hampshine Street Cambridge, MA 02139	BOREHOLE LOG RW-SED-39
Client: Boston Parks and Recreation Department Project Location: Riverway	Project Name: Muddy River Project Number: 1517-28449-SR-SEDSAMP, FIELD
Drilling Contractor: GEO-TEK	Surface Elevation (ft.):
Drilling Method/Rig: DTC/3" Split Spoon	Total Depth (ft.): 6
Drillers: Glen & Matt	Depth of Water (ft.):
Oriting Date: Start: 8/25/00 End: 8/25/00	Abandonment Method: Collapsed
Borehole Coordinates:	Field Screening Instrument: OVM w/ 10.2 PID
ш	Logged By: K Dillaway

BOREHOLE LOG RW-SED-39	Project Name: Muddy River Project Number: 1517-28449-SR-SEDSAMP.FIELD	Surface Elevation (ft.):	Total Depth (ft.): 6	Depth of Water (ft.):	Abandonment Method: Collapsed	Field Screening Instrument: OVM w/ 10.2 PID	Logged By: K Dillaway	Meterial Description	0-2: Wet, very loose, black, medium to fine SAND and SILT, some organics.	2-4: Wet, very loose, grey, ORGANIC MATERIAL and line SAND.	6-8: Top 11": Wet, medium dense, grey, coarse to fine SAND, tittle sitt and organics.	Gottom 12: Well loose, grey, inte SAND and GRAVEL, some sit (iii) [native].	End of Boring at 6 feet BGS.		REMARKS	
ω ≩	±							Log mutant2 notisengised	******	*******	××××					3: Bampler Core Core Core Core Tich on on on on on on on on on on on on on
	ırtmen				0			Graphic		*****					SSO	G TYPES allomia 5° Rock 15° Rock 10° Ro
	Depa		000		3/25/0			Blows per 6 Inches	WOM	WOH WOR	000	• •			EVIAT	AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
	reation	¥	Split Sp		End:			ineminitani bleii gaibseA (mqq)	0.0	NA NA	0.0				FABBR	A SON TO THE SE
	ind Rei	EO-TE	TC/3*		/25/00			Elev. Depth (ft.)	0			n	9	102	ONOL	
Street A 02139	Parks a	ctor: G	WRIG: D	& Matt	Start: 8/	dinates:		Semple Recovery (Inches)	24/24	24/4	24/23				EXPLANATION OF ABBREVIATIONS	B: Auger Auger Poteny 'y roculetten
CDDM 50 Hampshire Street Cambridge, MA 02139	Client: Boston Parks and Recreation Department Project Location: Riverway	Drilling Contractor: GEO-TEK	Drilling Method/Rig: DTC/3* Split Spoon	Drillers: Glen & Matt	Oriting Date: Start: 8/25/00 End: 8/25/00	Borehole Coordinates:	ш	Sample Number							ă	HOLD WETHODS: Hollow Stem Solid Stem Au Hand Auger Air Rotary Out Those Ro Foam Rictary Mud Ratary Reverse Circus Cable Tool
💙 ଜଣ	Cile	Drill	Drill	Drilli	Drill	Bore	z	Sample	SS	8	SS					DANILLI SSSA AAR OTTR CT CT

BOREHOLE LOG	Project Name: Muddy River Project Number: 1517-28449-SR-SEDSAMP, FIELD	Surface Elevation (ft.):	Total Depth (ft.): 8	Depth of Water (ft.): 1.5	Abandonment Method: Collapsed	Field Screening Instrument: OVM w/ 10.2 PID	Logged By: K Dillaway	Material Description	0-2": Wet, very loose, grey, coarse to fine SAND, little organics.	2-4°; As above.	4-6": Wet, very loose, grey, coarse to fine SAND, fitte organics, trace slit.	6-8: Wet, medium dense, light brown, CLAY, little organics (native).	End of Boring at 8 feet BGS.						REMARKS	
<u> </u>								Stratum Designation											1	Sample core core core core core core core cor
	tment							Graphic bod											ONS	Paring Types: Auga/drab Sampi 1.5" Rock Core 2.1" Rock Core 3.1" Rock Core 5.1" Rock Core 6.1"
	Depar		noc		117/00			Blows per 6 Inches	WOR	u u	- 01 1	2 2 2 2 2 2							EVIATI	SAMPLING AS AMPLING AS
	reation	_	Split Spo		End: 8			Inemunitani blei Priesen Reading (mqq)	4.5	¥ Z	0.5	0.0							F ABBR	\$ < 0 2 5 ± 8 5 5
	nd Rec	O-TE	TC/3"		17/00			Elax, (ft.)	0		ro			9	, , ,	15	,	1 1	ONOL	
Streat 1 02139	Parks a	ctor: GE	VRIg: D	& Tom	Start: 8/	dinates:		Sample Recovery (inches)	24/8	24/12	24/5	24/18							EXPLANATION OF ABBREVIATIONS	Auger Auger Iotary y outston
CO Hampshire Street Cambridge, MA 02139	Client: Boston Parks and Recreation Department Project Location: Leverett Pond	Drilling Contractor: GEO-TEK	Drilling Method/Rig: DTC/3" Split Spoon	Drillers: Glen & Tom	Drilling Date: Start: 8/17/00 End: 8/17/00	Borehole Coordinates:	ш	Sample											ă	NG METHODS: Hollow Stam Auger Solid Stem Auger Hand Auger Air Potany Dual Tube Rotary Mud Rotary Reverse Circulation Cable Tool
0.00	Cllen	Drill	P	Drille	100	Bore	z	Sample	SS	SS	SS	SS								DARLLI HSA SSA HAA HAA DOTH FFR GCT CCT

on Department Project Name: Muddy River Project Number: 1517-28449-SEDSAMP.FIELD	Surface Elevation (ft.):		Depth of Water (ft.): 4 B117/00 Abandonment Method: Collabsed		Logged By: K Dillaway	Blows per 6 Inches 6 Inches Craphic Log Stratum Stratum			End of boring at 4 feet BGS.				
Recreati	TEK	3" Split	00 End			Inemutani bleii		ž			1.	1 1	1 1
s and R	GEO-T	DTC/3	8/17/0	ë			0	1	lo .	L	0		
Parks	ctor:	d/Rig:	& Tom	dinate		Sample	24/18	24/22					
	Client: Boston Parks and Recreation Department Project Project Location: Levereit Pond						Stratum Designation	mulah? notangised	mulsu? nodsnôlesd	mulsug nodengleed	mulsu? notenglased	mulani? notiangised	mulsni2 nodsniglesd

Reviewed by: J.M.C.Muller Date: 12/11/80

SAMPUNG TYPES:

3 Adaptions Sample
CS California Sample
KX 12 Frock Cone
KX 0.2 Frock Cone
KX 0.4 Froc

HASA SSA ARRANA ARRANA

MUDDY RIVER BL MRLP GPJ COM MA GDT 12/13/00

REMARKS

EXPLANATION OF ABBREVIATIONS

	LP-SED-03	urtment Project Name: Muddy River Project Number: 1517-2849-SR-SEDSAMP.FIELD	Surface Elevation (ft.):	Total Depth (ft.): 4	Depth of Water (ft.): 4.5	0 Abandonment Method: Collapsed	Fleid Screening instrument: OVM w/ 10.2 PID	Logged By: K Dillaway	Chesgnation Designation Designation	0-2: Wet, very loose, black, medium to fine SAND and SILT, some organics.	2-4: Wet, stiff, grey-yellow, CLAY (native).	End of Boring at 4 feet BGS.			ONS REMARKS	S Sarrope S Sarr
ш		Client: Boston Parks and Recreation Department Project Location: Leverett Pond		alit Spoon		ind: 8/18/00			(bbm) (bym) (bym) (bym) (bym)	0.0	0.0 8 9 9				EXPLANATION OF ABBREVIATIONS	SAMPLING TYPES: AB - Auger/drab Si. CS - Callionine Sam CS - Callionine Sam CN - 1.5 Teok Com CN - 2.1* Reck Com GP - HP - Hydro Punch SS - Spill Spoon ST - Rhelpy Tube
ER & MCKE	-et 139	rks and Recr Leverett Pon	r: GEO-TEK	g: DTC/3" Sp	mo	rt: 8/18/00 E	ntes:		Hecovery (inches) (ft.)	24/12	24/24	ľ	 10	 150	 NATION OF A	h c
CAMP DRESSER & McKEE	50 Hampshire Street Cambridge, MA 02139	Client: Boston Parks and Recres	Drilling Contractor: GEO-TEK	Drilling Method/Rig: DTC/3" Spilt Spoon	Drillers: Glen & Tom	Drilling Date: Start: 8/18/00 End: 8/18/00	Borehole Coordinates:	m	Sample	24	24				EXPLA	METHO Hollow S Solid Sta Hand Au Hand Au Hand Tub Foam R Wud Rotal
0	S 20	Ciler	Drilli	Drill	Drille	Drill	Bore	z	Sample	SS	SS		 			DRILLING SSA HA DTR

BOREHOLE LOG	Project Name: Muddy River Project Number: 1517-28449-SR-SEDSAMP.FIELD	Surface Elevation (ft.):	Total Depth (ft.): 4	Depth of Water (ft.): 5.5	Abandonment Method: Collapsed	Field Screening Instrument: OVM w/ 10,2 PID	Logged By: K Dillaway	Material Description	0-2: Top 6: Wet, very loose, black, medium to fine SAND and SILT, some organics. Bottom 6: Wet, very stiff, grey, CLAY, trace sift.	2-4; Wei, hard, grey-yellow, CLAY (native).	End of Boring at 4 feet BGS.				REMARKS	The same of the sa
	nt							Log Stratum Sesignation		8					v v	PPES: **Grand Sample **Grand Sample **Grand Sample **Grand Core **Grand Core **Grand **Spoon **Spoon **Spoon **Sample **Sample **Sample
	epartme		5		00/21			Graphic Graphic	HOW YOU	29 28 25					EXPLANATION OF ABBREVIATIONS	Auge Calific C
ų	eation D		DTC/3" Split Spoon		End: 8/1			pribeeA (mqq)	0.0	0.0					FABBRE	SAME SERVICE S
COMPONENT OF A MONTE O	nd Recr	EO-TEK	TC/3° S		17/00			Elen. Depth (ft.)	0		no la	ļ	2	10	NOT NOT	
Street 02139	Parks a	ctor: G	VRIg: D	& Tom	Start: 8/	dinates:		Sample Recovery (Inches)	24/12	24/24					KPLANA	S: Auger Auger Rosery ry routeion
CDM 50 Hampshire Street Cambridge, MA 02139	Citent: Boston Parks and Recreation Department Project Location: Leverett Pond	Drilling Contractor: GEO-TEK	Drilling Method/Rig:	Drillers: Glen & Tom	Drilling Date: Start: 8/17/00 End: 8/17/00	Borehole Coordinates:	ш	Sample								MAG METHODE Hollow Stan Boald Stem Hand Auge All Rotary Dual Tube I Foum Rota Mud Rotary Reverse Cl Cable Tool
5 0 88	Cilen	Drillin	Drillia	Drille	Drilli	Bore	z	edyT	SS	SS				***		DY RIVER OF MALE OF I

OLE LOG	Project Name: Muddy River Project Number: 1517-28449-SR-SEDSAMP,FIELD	vation (ft.):	(ft.): 4	ater (ft.): 4.5	Abandonment Method: Collapsed	Field Screening Instrument: OVM w/ 10.2 PID	Logged By: K Dillaway	Material Description	0-2': Wet, very loose, black, medium to fine SAND and SILT, some organics.	2-4: Wet, very stiff, grey-yellow, CLAY (native).	i 4 feet BGS.			DENABAC	6
BOREH LP-SED-05	Project Name: M Project Number:	Surface Elevation (ft.):	Total Depth (ft.):	Depth of Water (ft.):	Abandonm	Fleid Scree	Logged By		0-2". Wet, very it organics.	2-4": Wet, very a	End of Boring at 4 feet BGS.				S &
	au t							Log Stratum Designation				 			G TYPES: G TYPE
	epartme		Ę		00/81			Blows per 6 inches Graphic	F	0 0 0 0		 			SAMPLING TYPES: SAMPLING TYPES: SAMPLING TYPES: SAMPLING TYPES: The continue Sample Barning Ba
	eation D		plit Spoc		End: 8/			Ineminitani bleiii Qnibsefi (mqq)	7.1	9.0			 		A SA
	nd Recr	O-TEK	rc/3" S		18/00			Depth (ft.)	0	-	w	 0	 5		
Street 02139	Parks ar	tor: GE	/Rig: Di	Tom Y	start: 8/	dinates:		Sample Recovery (Inches)	24/24	24/22					EXFLANA ION OF ABBREVA IONS 30AIPLION OF ABBREVA IONS 10A ABBRY
CEDIM 50 Hampshire Street Cambridge, MA 02139	Client: Boston Parks and Recreation Department Project Location: Leverett Pond	Drilling Contractor: GEO-TEK	Drilling Method/Rig: DTC/3" Split Spoon	Drillers: Glen & Tom	Drilling Date: Start: 8/18/00 End: 8/18/00	Borehole Coordinates:	ш	Sample							NG METHODS: Holtow Stem A solid Stem A Hand Auger. Air Rotary Dual Tube Ro Foam Rotary Revere Circus, Cable Tool Jeithng
So H	Client: Project	Drillin	Drillin	Driller	Drillin	Boreh	z	Sample Type	SS	SS					BRILLIN 888A 888A HA HA AN OTR CT

						_			JCs.			 				
BOREHOLE LOG	Project Name: Muddy River Project Number: 1517-28449-SR-SEDSAMP FIELD	Surface Elevation (ft.):	Total Depth (ft.): 4	Depth of Water (ft.): 5.5	Abandonment Method: Collapsed	Field Screening Instrument: OVM w/ 10.2 PID	Logged By: K Dillaway	Material Description	0-2: Wet, very loose, medium to line SAND and SILT, some organics	2-4°, Top 12°, As above. Bottom 12°, Wu, stiff, grey-yellow, CLAY (tathve).	End of Boring at 4 feet BGS.				REMARKS	
								Stratum notisingleed				 	 			Auger/Crab Sample Auger/Crab Sample California Sample 1.5° Rock Core 6 Geoprobe Pydro Panich Shelby Tube Wash Sample
	tment							Graphic Log							SNO	NG TYPES: Auger/drab San California Sanpa 1.5° Rock Core 2.1° Rock Core 3.1° Rock Core deoprobe Hydro Punch Spill Spoon Sheby Tube Wash Sample
	Depar		по		17/00			Blows per 6 Inches	WOR	C/ 4 #0 @					VIATION	A& Aug CS Call CS Call MX 2.1 NX 2.1 NX 9.1 NY 9.1
	reation	_	Split Spo		End: 8			Briaminitani bleii gnibeeA (mqq)	0.0	0.0					ABBRE	A S S S S S S S S S S S S S S S S S S S
	nd Rec	O-TE	C/3:		17/00			Elex, Ospth (ft.)	0	1 1	10	 9	10	1 1 1	ONO	
Street 1 02139	Parks ar	tor: GE	/Rig: D1	Tom	start: 8/	dinates:		Sample (suches)	24/24	24/24		 	 		EXPLANATION OF ABBREVIATIONS	DS: tem Auger on Auger on Auger of Polsary tary tary tary circutation of
COMMISSION Street	Client: Boston Parks and Recreation Department Project Location: Leverett Pond	Drilling Contractor: GEO-TEK	Drilling Method/Rig: DTC/3* Split Spoon	Drillers: Glen & Tom	Drilling Date: Start: 8/17/00 End: 8/17/00	Borehole Coordinates:	ш	Sample Number							E	MG METHODS: Hollow Stem A Solid Stem A Hand Auger Air Rotary Dual Tube Ro Foam Rotary Mud Rotary Revene Circu Cable Tool
3 2 2	Clien	Drill	Dre	Drille	Drilling	Bore	z	Sample	SS	SS						SSA -

BOREHOLE LOG		Project Name: Muddy River Project Number: 1517-28449-SR-SEDSAMP.FIELD	Surface Elevedon (ft.):	Total Depth (ft.): 6	Depth of Water (ft.):	Abandonment Method: Collapsed	Field Screening instrument: OVM w/ 10.2 PID	Logged By: K Dillaway	Material Description	0-2". Wet, very loose, black, medium to fine SAND and SILT, some organics.	2-4: As above.	4-5: Wet, medium stiff, grey, CLAY, some fine sand (native).	End of Boring at 6 feet BGS.	On Control of the Con	Reviewed by: 3 M. C. Mulle Date: 12 ///(CC)
		eation Department		olit Spoon		End: 8/18/00			Pleading (ppm) Blows per 6 Inches Caraphic Log Log Stratum Stratum	Push 0	Push 2	0.0 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4	w	BEDEVATONS	SAMPLIAGY TYPES: AMPLIAGY TYPES: AS AMPLIAGY TYPES: CONTRIBUTION OF THE TYPE TYPE TYPE TYPE TYPE TYPE TYPE TYP
CAMP DRESSER & MCKEE CDM CAMPADATIVE Street	nbridge, MA 02139	Client: Boston Parks and Recreation Department Project Location: Leverett Pond	Drilling Contractor: GEO-TEK	Drilling Method/Rig: DTC/3" Split Spoon	Drillers: Glen & Tom	Drilling Date: Start: 8/18/00 End: 8/18/00	Borehole Coordinates:	ш	Number of the control	2424	24/18 -	24/18 - 5	0 12	EYB ANATION OF A BEBERINATIONS	Land All Hollows Standard Andrews Andrews Standard Andrews And
S O 8	Ca	Client: Project	Ortilie	Orillir	Drille	Drillir	Boret	z	elqms2 eqyT	SS	SS	SS	Me	GI IGDAM M	MUDDY RIVER BL. MRIP GP. CE

BOREHOLE LOG	Project Name: Muddy River Project Number: 1517-28449-SR-SEDSAMP,FIELD	Surface Elevation (ft.):	Total Depth (ft.): 4	Depth of Water (ft.): 4.5	Abandonment Method: Collapsed	Field Screening Instrument: OVM w/ 10.2 PID	Logged By: K Dillaway	Material Description	0-2: Wet, very loase, medium to fine SAND and SILT, some organics.	2-4: Top 8: As above.	Bottom 14": Wet, soft, gray-green, CLAY (native).	End of Boring at 4 feet BGS.				REMARKS	Parisment T. M. Cat. 1100 Paris 17 /11 /Com
™ 4	ant							Log Stratum Designation								SS: ESS: Simb Semple As Sempler of Core be	Tube Iample Ground
	Separtme		uc		17/00			Blows per 6 Inches	risa W	₩ MON MON	A e e					VIATIONS IPLING TYPES: Augenfana California S 1.1° Rock C 2.1° Rock C Gaeprobe Gaeprobe Hydro Puno	83 - Spik Spoon ST - Shetby Tube WS - Wash Samp OTHER: AGS - Above Gro
Ш	reation D		plit Spoo		End: 8/			pnibseA (mqq)	0.0		0.0					 EXPLANATION OF ABBREVIATIONS BANATION OF ABBREVIATIONS BANATION OF ABBREVIATIONS BANATIONS BANA	ST ST OTH OTH
W WCK	and Rec	GEO-TEK	TC/3" S		11/00			Eler. Depth (ft.)	0	-	,	un un	1	9	15	 NOT OF OR	
TESSEH Te Street MA 02139	Parks s		WRIG: D	& Tom	Start: 8	dinates:		Sample Recovery (Inches)	24/22		24/22					CPLANA CPLANA COGET	notebo
COMP DRESSER & MOREE SO Hampshire Street Cambridge, MA 02139	Clent: Boston Parks and Recreation Department Project Location: Leverett Pond	Drilling Contractor:	Drilling Method/Rig: DTC/3" Split Spoon	Drillers: Glen & Tom	Drilling Date: Start: 8/17/00 End: 8/17/00	Borehole Coordinates:	ш	Sample								NG METHODS Notion Stan Bold Stan Hand Auger Ar Roteny Dual Tube P Foam Rotery	Reverse Cir Cable Tool Jatting
3 8 8	Cilen	- Drill	Drille	Drille	Drill	Bore	z	eldma2 eqyT	SS		SS					DRULLI HSA SSA SSA NA NA DTR	E S P P O

BOREHOLE LOG LP-SED-09	Project Name: Muddy River Project Number: 1517-28449-SR-SEDSAMP.FIELD	Surface Elevation (ft.):	Total Depth (ft.): 6	Depth of Water (ft.): 4.5	Abandonment Method: Collapsed	Fleid Screening Instrument: OVM w/ 10.2 PID	Logged By: K Dillaway	Material Description	0-2: Wet, very loose, black, medium to fine SAND and SILT, some organics. 2" day layer in tip of spoon.	2-4". Wet, medium dense, grey, fine SAND, trace silt (native).	4-6: As above.	End of Boring at 6 feat BGS.				PEMARKS	
<u>т</u>								Stratum notisinglised									Sample ample ore ore
	rtment				_			Graphic Log								SNO	Ma TVPES: Augel/Cris Sampile California Bampile California Bampile 2.1 Flock Core 2.1 Flock Core Geoprobe Hydro Punch Spill Spoon Shelby Tuble Wash Sampile
	Depa		noo		3/18/00			Blows per 6 Inches	WOH	WOH WOH	N 4 0 10 4					EVIAT	SAMPLING ASS. AUG. C.
	reation	¥	Split Sp		End:			Ineminisal bleii gnibseA (mqq)	2.7	9.0	A A					ABBR	# < 0 m ≥ 0 ± % m ≥ 0
	rks and Recret	O-TE	TC/3"		18/00			Elev. Depth (ft.)	0	1	40	1 1	9	7	15	ONOL	
Street 1 02139	Parks a	ctor: GE	VRIg: D	Tom	start: 8/	dinates:		Sample Recovery (Inches)	24/24	24/18	24/20					EXPLANATION OF ABBREVIATIONS	Auger uger otary
CDM 50 Hampshire Street Cambridge, MA 02139	Client: Boston Parks and Recreation Department Project Location: Leverett Pond	Drilling Contractor: GEO-TEK	Drilling Method/Rig: DTC/3" Split Spoon	Drillers: Glen & Tom	Drilling Date: Start: 8/18/00 End: 8/18/00	Borehole Coordinates:	ш	Sample				,				X	INIG METHODS: Fold Stem Auger Sold Stem Auger Hand Auger Air Rotary Dust Tuber Rotary Foam Rotary Rotarise Circulation Cable Totary Baverse Circulation Cable Totary
80	Cliet	Drill	Drill	Drill	Dri	Bore	2	Sample Type	SS	SS	SS						DORKLI HSA HSA HSA HS DTR PC CT

BOREHOI LP-SED-10	Project Name: Mud
CAMP DRESSER & MCKEE CDM 50 Humpshire Street Cambridge, MA 02139	Clent: Boston Parks and Recreation Department

ath a	Cembridge, MA 02139						BOREHOLE LOG LP-SED-10
0 =	Cilent: Boston Parks and Recreation Department Project Location: Leverett Pond	and Ret	reation	Depar	tment		Project Name: Muddy River Project Number: 1517-28449-SR-SEDSAMP.FIELD
b	Orliling Contractor: Geo-Tek	eo-Tek					Surface Elevation (ft.):
2 :	Drilling Method/Rig: DTC/3" Split Spoon	TC/3"	Split Spo	LOC			Total Depth (ft.): 10
E 9,0	Drilling Date: Start: 8/7/0		End: 8/7/00	00			Depth of Water (ft.): 0.8 Abandonment Method: Collabsed
0	Borehole Coordinates:						Field Screening Instrument: OVM w/ 10.2 PID
							Logged By: JLG
Sample	Semple Recovery (Inches)	Elex. Depth (ft.)	tnemuntani bieli Resign (mqq)	g juches	Graphic Log	Stratum	Material Description
	24/8	0	0.0	2 2 55 5			0-2". Top 3". Wet, black, organic detritus layer. Bottom 4". Wet, dense, grey, SILT, some clay.
1	24/0	1 1	0.0	27 27 2			2-4∜. No recovery.
1	24/20	LO .	0.0	2 # 2 B			4-5: Top 10": Wet, dense, light brown, coarse SAND. Bottom 10": Wet, dense, tan, medium to fine SAND.
1	24/24		0:0	6 9 9			6-5: Wet, medium dense, tan, medium to fine SAND, little sitt (native).
1	24/20		0.0	N 0 0 0			6-10: Wet, loose, light gray, SILTY CLAY (native).
		P					Bottom of Exploration at 10 feet BGS.
		ro					
T LLI	EXPLANATION OF ABBREVIATIONS	ONOL	FABBRE	WATI	ONS		REMARKS
A = E & > = = = 0 0	RETHOOS: Hollow Stem Auger Joint Stem Auger Joint Stem Auger Aur Rollow Four Rollary Four Rollary Reverse Citzliellon Jeting Dirkhing		A STAN STAN STAN STAN STAN STAN STAN STA	SAMPLING AS Aug AS Cala BK Cala BK Cala GF Cala GF Cala ST Shr ST Shr ST Shr ST Shr AGS Ab	Application Sample Table Transport Television Sample Table Transport Table Transport Spring Sport Spring Transport Spring Sport Wash Spring Table Table Spring Transport Table	Sample ampler ore ore ore ind	; ; ; ; ; ; ; ; ; ; ; ; ; ; ; ; ; ; ;
2	gh Casing			70	riace		Heviewed by: 0.17 14116

BOREHOLE LOG	Project Name: Muddy River Project Number: 1517-28449-SR-SEDSAMP.FIELD	Surface Elevation (ft.):	Total Depth (ft.): 6	Depth of Water (ft.): 4.5	Abandonment Method: Collapsed	Field Screening Instrument: OVM w/ 10.2 PID	Logged By: K Dillaway	Material Description	0-2: Wet, very loose, black, medium to fine SAND and SILT, some organics.	2-4: As above.	4-6: Wei, loose, grey, fine SAND (native).	End of Boring at 6 feet BGS.			BENABVC	Reviewed by: J. P. Solla [fe] Date: 12/1/180
ш _								Stratum Designation								mpier re e
	tment							Graphic Log							SNO	MING TYPES: Augardicab Sample Callonnia Sample (1.5 Flock Core Geoprobe Geoprobe Shelby Tube Shelby Tube Above Ground Surface
	Depar		noc		/22/00			Blows per 6 Inches	WOR	WOR	444				VIATIO	SAMPLING TYPES: AB. Auganificant B. Callionnia Sa. S. Auganificant B. S. Callionnia Sa. S. T. Froct Co. G. G
	creation	~	Split Spo		End: 8			memurani bieiii gaibaaA (mqq)	0.0	0.0	0.0				ABBR	A S S S S S S S S S S S S S S S S S S S
& Mck	ind Re	EO-TE	TC/3"		22/00			Elav. Depth (ft.)	0	11	ro	7 7	0	5	ONO	
Street A 02139	Parks a	ctor: GE	VRIg: D	& Matt	Start: 8/	dinates:		Sample Recovery (Inches)	24/22	24/18	24/20				EXPLANATION OF ABBREVIATIONS	Auger uger Mary detion Castrg
CAMP DRESSER & MCKEE CDM So Hampshire Street Cambridge, MA 02139	Client: Boston Parks and Recreation Department Project Location: Leverett Pond	Drilling Contractor: GEO-TEK	Drilling Method/Rig: DTC/3" Split Spoon	Drillers: Glen & Matt	Drilling Date: Start: 8/22/00 End: 8/22/00	Borehole Coordinates:	ш	Sample							EXE	METHC ollow 5 old St old St old St old St old Rot oud Rot everse sable Tc everse able Tc everse able Tc
0 8 8	Clle	Drill	Dru	Drill	Drill	Bon	z	Sample	SS	SS	SS					MUDDY-RIVER BELL MELP GPJ CI

BOREHOLE LOG	Project Name: Muddy River Project Number: 1517-28449-SR-SEDSAMP.FIELD	Surface Elevation (ft.):	Total Depth (ft.): 6	Depth of Water (ft.): 3.5	Abandonment Method: Collapsed	Field Screening Instrument: OVM w/ 10.2 PID	Logged By: K Dillaway	Material Description	0-2: Wet, very loose, black, medium to fine SAND and SILT, little organics, trace peat.	2-4: As above.	4-6: As above.	6-5". Wet, very loose, black-gray, fine SAND and SiLT, some peat (nailve).	End of Boring at 8 feet BGS.		REMARKS	Benjamed No. 1 100 Date: 121/1/67
m 🖰	ent							Graphic Log Stratum Designation	·	*****					SS.	NG TYPES: Auger/drab Semple California Sample California Sample 11-8 Rock Core 21-8 Rock Core Genoprobe Hydro Punch Spill Sooon Spill Sooon Wash Sample
	epartm		c		8/00			Blows per 6 Inches	Push *****	MOW HOW	WOH WOH	NOH - 2 -			OITAIN	ラ
щ	eation D		olit Spoo		End: 8/1			fried of the fraction of the friends	0.3	0.3	¥ X	0.3			ABBRE	A SA
MCKE	d Recriett Pon	O-TEK	C/3 S		18/00			Depth (ft.)	0	+	lu lu	+	2	20	NON OF	
SSER 8	Boston Parks and Recreation Department Location: Leverett Pond	tor: GE	Mig: DT	t Tom	tart: 8/1	ilnates:		Sample Recovery (Inches)	24/18	24/18	24/16	24/24			EXPLANATION OF ABBREVIATIONS	ETHOOS: flow Stem Auger and Auger Hotary Troe Rotary an Rotary an Rotary were Circutation be Tool
CAMP DHESSER & MOREE CADM So Hampshire Street Cambridge, MA 02139	Cilent: Boston Parks and Recrei	Drilling Contractor: GEO-TEK	Drilling Method/Rig: DTC/3" Split Spoon	Dritters: Glen & Tom	Drilling Date: Start: 8/18/00 End: 8/18/00	Borehole Coordinates:	ш	Sample							ă	ING METHODG Hollow Stem, Solid Stem, Hend Auger Air Rotary Dual Tube F Foam Rotary Mad Rotary Reverse City Cache Tool
2 0 8 0	Cllent	Drilli	Drille	Drille	Drilli	Bore	z	Sample SqvT	SS	S	SS	SS				TAN THE BEN CONTROL OF THE CAN C

BOREHOLE LOG LP-SED-13	Project Name: Muddy River Project Number: 1517-28449-SR-SEDSAMP.FIELD	Surface Elevation (ft.):	Total Depth (ft.): 8	Depth of Water (ft.): 2.5	Abandonment Method: Collapsed	Field Screening Instrument: OVM w/ 10.2 PID	Logged By: K Dillaway	Material Description	0-2; Wet, very loose, black, medium to fine SAND and organic SILT.	2-4: Wet, very loose, black, medium to fine SAND and organic SILT, trace day.	4-6": Top 18": As above. Battom 6": Wet, loose, yellow-grey, coerse to fine SAND (native).	6-8: Wet, medium dense, yellow-grey, coarse to fine SANU (native).	End of Borting at 8 feet BGS				REMARKS	
<u>п</u>								Stratum Designation								-		ES: irab Sample irab Sampler ck Core ck Core be be boon Tube
	ment							Graphic Log									ONS	
	Depan		non		/23/00			Blows per 6 Inches	PUSH	PUSH	WOR						EVIAT	SAMPLING TYPES: As AugerGrab As Calfornia Sa Calfornia Purita Sunita Purita Sa Calfornia Calf
	reation	×	Split Spo		End: 8			friend Instrument Beibeeff (mqq)	0.0	0.0	¥ Z	0.0					F ABBR	∞∢∪
	nd Rec	0-TE	rc/3"		23/00			Elex, Depth (ft.)	0		ω			9	 10		TION	
Street A 02139	Boston Parks and Recreation Department Location: Leverett Pond	ctor: GE	MRIg: D	& Matt	Start: 8/	dinates:		Sample Recovery (Inches)	24/22	24/24	24/24	24/20					EXPLANATION OF ABBREVIATIONS	DOS: ttern Auger mm Auger ger ger y y se Rotary sary Circulation
50 Hampshire Street Cambridge, MA 02139		Drilling Contractor: GEO-TEK	Drilling Method/Rig: DTC/3" Spilt Spoon	Drillers: Glen & Matt	Drilling Date: Start: 8/23/00 End: 8/23/00	Borehole Coordinates:	ш	Sample										NG METHODS: Hollow Stem. Solid Stem A Hand Augar Hand Augar Dust Tube No Foam Fotany Mud Rotany Reverse Circ. Cable Tool
SO H	Client: Project	Drillin	Drillin	Drille	Drillir	Borel	z	Semple	SS	SS	SS	SS						OPRILLI HSA SSA SSA HA AA DTR FR FR

BOREHOLE LOG	Project Name: Muddy River Project Number: 1517-2849-SR-SEDSAMP.FIELD	Surface Elevation (ft.):	Total Depth (ft.): 8	Depth of Water (ft.): 4.5	Abandonment Method: Collapsed	Field Screening Instrument: OVM w/ 10,2 PID	Logged By: K Dillaway	Material Description	0.2: Wet, very loose, black, medium to fine SAND and SILT, some peat.	2-4". Top 6". As above. Bottom 6": Wet, very loose, black, fine SAND, some peat.	4-6"; PEAT (native).	G-8∵ As above.	End of Boring at 6 feet BGS		RFMARKS	
B -	rtment				0			Saphie Log mutett?							SNO	SAMPLING TYPES: AS Addiction Sample AS ADDICTION
	Client: Boston Parks and Recreation Department Project Location: Leverett Pond		lit Spoon		Drilling Date: Start: 8/18/00 End: 8/18/00			(ppm) (ppm) Blows pet 6 Inches	3.0	WOR	1.4 WOR	Push			EXPLANATION OF ABBREVIATIONS	3AMPLING A8 - A46 C8 - C8 RX - 1.6 NX - 2.1 GAP - C9 GAP - C9 GAP - C9 SS - Spil ST - SNW WS - WM
CDM So Hampshire Street Cambridge, MA 02139	Client: Boston Parks and Recres	Drilling Contractor: GEO-TEK	DTC/3* Split Spoon		8/18/00 E			(#)	0		lu lu	-	0	ê.	TION OF A	
Street AA 02139	on Parks Non: Lev	actor: (od/Rig:	A Tom	Start:	ordinates		Sample Recovery (Inches)	24/23	24/12	24/24	24/20			CPLANA	FTHODS: flow Stem Auger id Stem Auger August August Folary at Tobe Rotary at Tobe Rotary of Rotary A Rotary everse Circulation ing
Cambridge, MA 02139	nt: Bosto ect Locat	ling Contr	Drilling Method/Rig:	Drillers: Glen & Tom	ing Date:	Borehole Coordinates:	ш	Sample							۵	NG METHODS: Hollow Siem Auger Sold Stem Auger Hand Auger Air Rotteny Dual Tube Rotteny Foam Rotteny Muo Rotteny Rotten Rotteny Auger Total
28 3	Cile	Dri	Drill	Drill	Drd	Bon	z	Semple	SS	SS	SS	SS				DANLLIN SSA - SSA

CEDIM Cambridge, MA 02139 Client: Boston Parks and Recreation Department Project Location: Leverett Pond Drilling Contractor: GEO-TEK Drilling Contractor: GEO-TEK Drilling Date: Start: 8/22/00 End: 8/22/00 Borehole Coordinates: N E Coordinates: N M COORDINATION
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CDM Street Campabine Street Cambridge, MA 02139	BOREHOLE LOG
Client: Boston Parks and Recreation Department Project Location: Leverett Pond	Project Name: Muddy River Project Number: 1517-28449-SR-SEDSAMP, FIELD
Drilling Contractor: GEO-TEK	Surface Elevation (ft.):
Drilling Method/Rig: DTC/3* Split Spoon	Total Depth (ft.): 8
Drillers: Glen & Matt	Depth of Water (ft.): 3.5
Drilling Date: Start: 8/23/00 End: 8/23/00	Abandonment Method: Collapsed
Borehole Coordinates:	Field Screening instrument: OVM w/ 10.2 PID
L Z	Logged By: K Dillaway

Sheet 1 of 1	LP-SED-16	Project Name: Muddy River	מוווספו: יייייייייייייייייייייייייייייייייייי	Surface Elevation (ft.):	Total Depth (ft.): 8	Depth of Water (ft.): 3.5	Abandonment Method: Collapsed	Field Screening Instrument: OVM w/ 10.2 PID	Logged By: K Dillaway	Material Description	0-2: Wet, very loose, black, medium to fine SAND and organic SILT.			4-6: Top 10": As above.	oral count (County)	er i op 8: vvet, medlum dense, grey, medlum to me sanu, some organica. Madde 12:: PEAT. Bottom 4: Wet, medlum dense, grey, fine SAND (native).	End of Boring at 8 feet BGS					REMARKS	
а п	LP-SED-16	Project N	riologi	Surface	Total Deg	Depth of	Abandon	Field Scn	Logged	Stratum Designation	0-2": Wet, very	2-4": As above.		4-6: Top 10": As above.		Middle 12": PE Bottom 4": We	End of Boring					_	Sample
		partment					00/			6 Inches Graphic Log				# E								ATIONS	ING TYPES: Auger/Grab Sample
ш		eation De	2		plit Spoon		End: 8/23			finemuntani biei-i nombes-fi (mqq) teq swold serbni 8	WOR 0.4	WOR	A N	WOH WOH	-	0.0						EXPLANATION OF ABBREVIATIONS	SAMPL AS .
& McKE		nd Recr	ומון גמו	GEO-TEK	TC/3° S		23/00			Depth (ft.)	0		-	-	,		*	02	 1 1	īū	1 1 1	TON OF	
SSER	Street 02139	Parks a	III. LOVE		VRIg: D	& Matt	Start: 8/	dinates:		Sample Recovery (Inches)	24/24		24/22	24/18		24/22	-		1 .1		 -	PLANAT	Auger
CAMP DRESSER & MCKEE	50 Hampshire Street Cambridge, MA 02139	Client: Boston Parks and Recreation Department	act cocalio	Drilling Contractor:	Drilling Method/Rig: DTC/3* Split Spoon	Drillers: Glen & Matt	Drilling Date: Start: 8/23/00 End: 8/23/00	Borehole Coordinates:	ш	Sample												ă	NG WETHOOS: - Hollow Stem Auger
3	88	Ciler	2	Drill	Drill	Drille	Drill	Bore	z	Semple	S		SS	SS		S							DARL

Reviewed by: J. M. C. Muller Date: 12/11/60

CDM Street Cambridge, MA 02199	Client: Boston Parks and Recreation Department Project Location: Leverett Pond	Drilling Contractor: GEO-TEK	Drilling Method/Alg: D1C/3" Split Spoon Drillers: Glen & Matt	Drilling Date: Start: 8/21/00 End: 8/21/00	Borehole Coordinates:		Approved the second of the sec	24/20 - 3.8 Push	24/20 3.3 Fush	24/22 - 5 - NA	2424 - NA Push	Push	0.3	2	19	EXPLANATION OF ABBREVIATIONS SAMPLING TYPES SAMPLIN	Officialities of T. Shraiby Tube of W.S Wash Sample OTHER AGS - Above Ground OSP Casing Surface
BOREHOLE LOG LP-SED-17	Project Name: Muddy River Project Number: 1517-28449-SR-SEDSAMP, FIELD	Surface Elevation (ft.):	lotsi Depth (T.): 10 Depth of Water (ft.): 4.5	Abandonment Method: Collapsed	Field Screening Instrument: OVM w/ 10.2 PID	Logged By: K Dillaway		0-2: Wel, very loose, black, medium to fine SAND and SILT. Organic odor.	2-4: As above.	4-6; As above.	6-8: Top 18*: As above.	8-10; As above.		End of Boring at 10 feet BGS		REMARKS	Ravisoused tv: M CM. 119

5 O O O O	Project Name: Muddy River Project Number: 1517-28449-SR-SEDSAMP.FIELD					collapsed	nt OVM w/ 10.2 PID		Material Description	0-2": Wet, very loase, black, medium to fine SAND and organic SILT.			Bottom 10*: Wet, medium dense, yellow-orange, fine SAND (native).					REMARKS	
BOREHOLE LP-SED-18	Project Name: Muddy River Project Number: 1517-284	Surface Flevetton (#):	Total Density (8): 8		Depth of Water (ft.): 3	Abandonment Method: Collapsed	Field Screening Instrument: OVM w/ 10.2 PID	Logged By: K Dillaway	notianglesed	0-2: Wet, very loose, black, med	2-4: As above.	4-6': Top 4": As above.	Bottom 10*: Wet, medium dense	End of Boring at 6 feet BGS					
	tment								Graphic Log mutstl2			****				 		ONS	SAMPLING TYPES: 8 Augendan's Simple C3 California Sample C3 California Sample C3 T Flox Core C4 T Flox Core C6 T Flox Core C7
	n Depar		0000	1000		8/22/00			(ppm) Blows per 6 Inches	WOR	WOR	80 80	7 8					EXPLANATION OF ABBREVIATIONS	SAMPLING
CDM So Hampshire Street Cambridge, MA 02139	creatio	×	Spiles	2 1100		End:			Field Instrument Reading	0.0	× ×	3	9					F ABB	
	and Re erett P	EO-TE	TC/3	200		722/00			Depth (ft.)	0			ιn		0	 	रु	 ONOL	
Street A 02139	Parks on: Lev	ctor: G	d/Rig:		& Matt	Start: 8	rdinates		Sample Recovery (Inches)	24/18	24/24	2000	24/14					PLANA	ODS: Stam Auger tem Auger urger try be Rotery cotsky texy odicaulation
CODM 50 Hampshire Street Cambridge, MA 02139	Client: Boston Parks and Recreation Department Project Location: Leverett Pond	Drilling Contractor: GEO-TEK	Deliling Method/Blo: DTC/3 Sollt Spoon	Simon Su	Drillers: Glen & Matt	Drilling Date: Start: 8/22/00 End: 8/22/00	Borehole Coordinates:	ш	Sample									0	NG METHODS: Hollow Starm A Solid Starm A Hand Auger Aut Rottery Dual Tube Ru Foam Rottery Mud Rottery Reverse Gro Cable Tool Jetting
80	Clier	Dritt	Drill		Ĭ O	Drd	Bore	z	Sample	SS	SS	8	3						DPALLUM HAA

BOREHOLE LOG LP-SED-19	Project Name: Muddy River Project Number: 1517-28449-SR-SEDSAMP.FIELD	Surface Elevation (ft.):	Total Depth (ft.): 10	Depth of Water (ft.): 1	Abandonment Method: Collapsed	Field Screening Instrument: OVM w/ 10.2 PID	Logged By: JLG		0-2": Wet, medium dense, black, ORGANICS with detritus layer.	2-4: Top 3": As above. Bottom 21": Wet, loose, black, SILT and CLAY, some peat.	4-6°: Top 6°: Wet, dense, black, SILT and CLAY, some peat. Middle 3°: Wet, dense, black, coarse to medium SAND. Bortom 15°: Wet, dense, tan, coarse to medium SAND.	6-8: Wet, loose, tan, coarse to medium, SAND (native).	6-10: Top 10": Wet, loose, tan, coarse to medium SAND. Bottom 14": Wet, loose, grey, SILT and CLAY (naitve).	Bottom of Exploration at 10 feet BGS.		REMARKS	
	tment							Graphic Log Stratum Designation								 SAMPLING TYPES: AS - Augendrab Sample CS - Callonia Sample TY - Callonia Sample SY - Callonia Sample	2.1* Rock Core Geoprobe Hydro Punch Spill Spronn Sheiby Tube Wash Sample Above Ground
	n Depar		nood		00/2/			Blows per 6 Inches	= 0 0 c	3 3	22 22 41	4 10 10 0	4 4 10 0			EXPLANATION OF ABBREVIATIONS DS: SAMPLING TYPE IRM Auger AB Augustra Ag Ag Augustra Ag Ag Augustra Ag Ag Ag Augustra Ag A	MX - 2.15 GP - Gao HP - Hydd 38 - Spill 8T - Shel WS - Was OTHER: Abo
YEE.	creatio		Split S		End: 8			Field Instrument Reading (mqq)	0.0	0.0	0.0	0.0	0.0			F ABBR	1 Z O X O 8 S O <
₩ W	and Re	eo-Tel	TC/3		00/2/			Elex. Depth (ft.)	0		, m			0	5	O NOL	
Street 4 02139	Parks on: Lev	ctor: G	WRIg: [& Dave	Start: 8	dinates		Sample Recovery (Inches)	24/10	24/24	24/24	24/24	24/24			PLANA Auger Auger	ulation
COMP DHESSER & MCKEE Company of the	Client: Boston Parks and Recreation Department Project Location: Leverett Pond	Drilling Contractor: Geo-Tek	Drilling Method/Rig: DTC/3" Split Spoon	Drillers: Matt & Dave	Drilling Date: Start: 8/7/00 End: 8/7/00	Borehole Coordinates:	ш	Sample								METHC follow S Solid Sta	Air Rotary Dual Tube Rotary Foam Rotary Mid Rotary Reverse Circulation Cabbe Tool Jetting
3 8 8	Clle	Drill	Drd	Drill	Drill	Borr	z	Sample Type	SS	SS	SS	SS	SS			DPILLING HSA - BSSA - B	P P P P P P P P P P P P P P P P P P P

CAMP DRESSER & MCKEF SO Hampshire Street Cambridge. MA 02139	BOREHOLE LOG
Client: Boston Parks and Recreation Department Project Location: Leverett Pond	Project Name: Muddy River Project Number: 1517-28449-SR-SEDSAMP.FIELD
Drilling Contractor: GEO-TEK	Surface Elevation (ft.):
Drilling Method/Rig: DTC/3" Split Spoon	Total Depth (ft.): 8
Drillers: Glen & Matt	Depth of Water (ft.): 3.5
Drilling Date: Start: 8/23/00 End: 8/23/00	Abandonment Method: Collapsed
Borehole Coordinates:	Field Screening Instrument: OVM w/ 10.2 PID
ш	Logged By: K Dillaway

	Jeer money		1	-				
F	Drilling Contractor: GEO-TEK	ctor: G	EO-TE	×				Surface Elevation (ft.):
D	Drilling Method/Rig: DTC/3" Spilt Spoon	d/Rig: D	TC/3"	Spilt Spo	noc			Total Depth (ft.): 8
2	Drillers: Glen	Gien & Matt						Depth of Water (ft.): 3.5
To To	Drilling Date: Start: 8/23/00	Start: 8	/23/00	End: 8/23/00	1/23/00			Abandonment Method: Collapsed
Bol	Borehole Coordinates:	dinates:						Fleid Screening Instrument: OVM w/ 10.2 PID
z	ш							Logged By: K Dillaway
Sample	Sample	Sample Recovery (Inches)	Elev. Oepth (ft.)	tnemuntant bieiii Reibseiii (mqq)	Blows per 6 Inches	Graphic god	Stratum Designation	Material Description
SS		24/22	0	0.0	WOR			0-2: Wet, very loose, black, medium to fine SAND and organic SILT.
SS		24/12	1 1	0.0	WOR			2-4* Top (0* As above. Bottom 2* PEAT.
SS		24/10	w	0.0	Push			4-6*: Top 6*: Wet, very loose, black, medium to fine SAND and organic SILT. SILT. Bottom 4": PEAT (native).
SS		24/20		A N	WOR Push 8			6-8: Top 4": Wet, very loose, grey, medium to fine SAND, some organisms. Research SAND, some some organisms of services or fire SAND, some other interest network medium dense, grey, coarse to fire SAND, some other interest networks.
AACIFE IN			P					End of Boring at 8 feet 8GS
	- W	XPLANA	TION	EXPLANATION OF ABBREVIATIONS	EVIAT	ONS		REMARKS
MUDDY RIVER BL. MRIP GP.)	LING METH - Hoffow - Solid Si - Hand A - Hand A - Foam P - Foam P - Revera	FTHODS: fow Stem Auger of Stem Auger of Auger of Auger of Auger of Rotary of		04UBZGI00504	SAMPLING TYPES: Auger/Grab. CS California CS CAS California CS CAS CASIONIA CS	Mg TYPES: Augenfarab Sampi California Sampi Li,5' Rook Core Casor Core Gaoprobe Hydro Punch Gaoprobe Hydro Punch Shelly Tube Wash Sample Above Ground	Sample Sampler Core Core Sample Samp Sample Sample Sample Sample Sample Sample Sample Sample Sample	Reviewed by: J. M. C. Mad Le Date: 12/1/100

BOREHOLE LOG LP-SED-21	Project Name: Muddy River Project Number: 1517-28449-SR-SEDSAMP.FIELD	Surface Elevation (ft.):	Total Depth (ft.): 8	Depth of Water (ft.): 3.5	Abandonment Method: Collapsed	Field Screening Instrument: OVM w/ 10.2 PID	Logged By: K Dillaway	Material Description	0-2: Wet, very loose, black, medium to fine SAND and SILT, some organics, trace gravel.	2-4: As above.	4-8; Top 16°; As above. Bottom 8°; PEAT.	6-8: Top 12": Wet, medium dense, black, medium to fine SAND and SILT. Bottom 10": Wet, medium dense, red, fine SAND, trace clay (native).	End of Boring at 8 faet BGS		REMARKS	Total Media 19 18/00
ш	-							Log Stratum Designation	*****	*****	******	****				LING TYPES: Auge/Grab Sampler California Sampler California Sampler Z. I Rock Core Geograbe Hydro Funch Spill Spoon Sheby Tube Wash Sample
	rtmen				0			Graphic		*****	*****				TION	NG TYPES: Calloria Samuria Saloria Saloria Samuria Samuria Samuria Samuria Saloria Sali Spoon Shelby Tube Wash Sample
	Depa		noo		3/21/0			Blows per 6 inches	WOM	WOR	WOH →	8 5 1 1 8 B			EVIA	SAMPLIN CGS CGS CGS CGS CGS CGS CGS CGS CGS CGS
1	reation		split Spo		End: 8			friend their phierit p	0.0	A N	2.0	0.0			F ABBF	5 < C = 2 C x = 5 S > C <
	and Rec	EO-TE	TC/3"		/21/00			Elex Depth (ft.)	0		u	,	15	1 1 1	ONOIL	
Street 1 02139	Parks a	ctor: G	WRIg: D	& Matt	Start: 8	dinates:		Sample Sample	24/22	24/24	24/24	24/22			EXPLANATION OF ABBREVIATIONS	THODS: THODS: Stem Auger Stem Auger A Auger I Auger Tube my Tube my Tube my Rotary Tube my Protained Tool
CDM 50 Hampshire Street Cambridge, MA 02139	Client: Boston Parks and Recreation Department Project Location: Leverett Pond	Drilling Contractor: GEO-TEK	Drilling Method/Rig: DTC/3" Split Spoon	Drillers: Glen & Matt	Drilling Date: Start: 8/21/00 End: 8/21/00	Borehole Coordinates:	ш	Sample								India METHODS: Solid Stem Auger Solid Stem Auger Hand Auger Hand Auger Live Rotary Dual Tube Rotary Mud Rotary Mud Rotary Revere Circulation Cable Tool Justing
0 8 8	Cilen	Drill	Drill	Drille	E L	Bore	z	Sample	SS	SS	SS	SS				SSA A HASA LASA A HASA

BOREHOLE LOG	ent Project Name: Muddy River Project Number: 1517-28449-SR-SEDSAMP.FIELD	Surface Elevation (ft.):	Total Depth (ft.): 8	Depth of Water (ft.): 3.5	Abandonment Method: Collapsed	Field Screening Instrument: OVM w/ 10.2 PID	Logged By: K Dillaway	Polymorphy of the polymorphy o	0-2: Wet, very loose, black, coarse to fine SAND and organic SILT	2-4: Wet, very loose, black, course to fine SAND and organic SILT, trace peat.	4-6": Top 6". As above. Bottom 10": Wet, very loose, grey, organic SILT, some pest.	6-8: Top 6:: Wet, medium dense, grey, fine SAND. Middle 2:: PEAT. Bottom 4': Wet, medium dense, grey, medium to fine SAND and organic SILT freative).	End of Boring at 8 feet BGS		REMARKS	Wan TyPeB: Wan TyPeB: TyPeB: Surpain TyPeB: Cover (Sep Press Cover (Sep Pr
	spartm		_		2/00			serbril 9	MOW HOW	WOR WOR	₩ E	F 2 2 1			ATION	
	ition De		Spoor		End: 8/22/00			(mqq)							BREVI	AMAPLIA CAS NX NX NX NX NX NX NX NX NX NX NX NX NX
	ecrea	岩	Split					Inemuntant bleii gnibsefi	0.0	0:0	0.0	0.0			F AB	
	and R	EO-T	TC/3		/22/00			Depth (ft.)	0		ls.	, , ,	01	2	NOL	
Street A 02139	Boston Parks and Recreation Department Location: Leverett Pond	ctor: G	VRIg: C	& Matt	Start: 8	dinates		Semple Recovery (Inches)	24/8	24/18	24/16	24/12			EXPLANATION OF ABBREVIATIONS	3: Auger Auger Potery y culetton
Cembridge, MA 02139		Drilling Contractor: GEO-TEK	Drilling Method/Rig: DTC/3" Split Spoon	Drillers: Glen & Matt	Drilling Date: Start: 8/22/00	Borehole Coordinates:	ш	Sample							EX	VG METHODS: Hollow Stem Auge Sould Stem Auger Hend Auger Air Rotany Oust Tube Rotany Foam Rotany Mud Rotany Reverse Circulatio
80	Cilent: Project	Drill	Drill	Drill	Drill	Bon	z	Sample	SS	SS	SS	SS				SA ISA

BOREHOLE LOG LP-SED-23	Project Name: Muddy River Project Number: 1517-28449-SR-SEDSAMP.FIELD	Surface Elevation (ft.):	Total Depth (ft.): 14	Depth of Water (ft.): 1.5	Abandonment Method: Collapsed	Field Screening Instrument: OVM w/ 10.2 PID	Logged By: K Dillaway	Material Description	0-2". Wet, very loose, grey, coarse to fine SAND, trace brick.	2-4; Wet, very loose, grey, coarse to fine SAND.	4-6': A a bove.	6-5' As abve.	8-10°. Top 9°: As above.	Bottom 9": Wet, loose, grey, coarse to fine SAND, trace gravel (native).	10-12: Wet, very loose, grey coarse to fine SAND, little stit, trace organics (native).	12-14*; As above.	End of Boring at 14 feet BGS	BFMARKS	
<u> </u>	tu:							Log Stratum Designation	****	******	×××××	******		CONTRACT		3000000000000			G TYPES: GG TYPE
	artme				00			Graphic		*****	×××××	*****	${\Longrightarrow}$						ING TYPES: Auger/Greb 5 Callonne Sar 1.5° Rock Con 2.1° Rock Con Geoprobe Hydra Purch Shill Spoun Shelby Tube Wash Sample
	n Dep		pood		8/23/			Blows per	Push	N	Pusi		- 01 01	240		40 m m		EVIAT	SAMPLIN CCS - A NNX - 2 GGP - GGP WHTP - H
	creatic	Y	Split S		End:			pnemuntani bieiii gaibseii (mqq)	0.0	A A	N A	0.0	1	NA N	NA A	0.0		ABBR	
	nd Reg	30-TE	TC/3*		23/00			Elav. Depth (ft.)	0	1	ro.	1		ļ.	2	1 -1	5	NO NO	
Street A 02139	Boston Parks and Recreation Department Location: Leverett Pond	ctor: G	VRIg: D	& Matt	Start: 8/	dinates:		Sample Recovery (Inches)	24/18	24/24	24/3	24/10	0440	24/18	24/12	24/18		EXPLANATION OF ABBREVIATIONS	S: Auger Auger Actary y cutation
CDD Street Cambridge, MA 02139		Drilling Contractor: GEO-TEK	Drilling Method/Rig: DTC/3* Split Spoon	Drillers: Glen & Matt	Drilling Date: Start: 8/23/00 End: 8/23/00	Borehole Coordinates:	ш	Sample										EXP	NG METHODS: Hollow Stem Auger Sold Stem Auger Hand Auger Air Rotary Dual Tube Rotary Mud Rotary Reverse Circulation Cable Tool
80	Client: Project	Drill	Drill	Drill	Drill	Bon	z	Sample	SS	SS	SS	SS	0	2	SS	SS			SSA NELLY

BOREHOLE LOG LP-SED-24	Project Name: Muddy River Project Number: 1517-28449-SR-SEDSAMP.FIELD	Surface Elevation (ft.):	Total Depth (ft.): 10	Depth of Water (ft.): 6.5	Abandonment Method: Collapsed	Field Screening Instrument: OVM w/ 10.2 PID	Logged By: K Dillaway	Material Description	0-2: Wet, very loose, black, coarse to fine SAND and GRAVEL, trace brick.	2-4": Wet, very loose, black, fine SAND, some organics.	4-6: Wet, very loose, grey, coarse to fine SAND, trace brick.	6-8': Top 12": As above.	Bottom 6*: PEAT (native).	8-10": As above.	End of Boring at 10 feet BGS		REMARKS	
B	±							Stratum notisinglised	*****	******	*******	****	হা ু					38: Sample mb Sample k Core k
	artme				00			Graphic Log	**************************************	**************************************	 				-		SNOT	BAMPLING TYPES: AS AdgerCarb S ES California Sal EX 1.5 Rota Co. NX 2.1 Rota Co. NX 2.1 Rota Co. NY 2.1 Rota Co. NY 8.1 Spull Spoon NY 8.1 SAMPI TO.
	Dep L		0000		8/21/			Blows per 6 Inches	WOM	2 for 24				01 01			- JEVIA	BAMPLIN CCS
	reation		Split Sp		End:			Field Instrument Reading (mqq)	2.0	2	5	0	0.0	× ×			F ABBI	
	nd Rec	O-TE	TC/3"		21/00			Clay, (ft.)	0		NO.				2	10	O NOL	
Street A 02139	Boston Parks and Recreation Department Location: Leverett Pond	ctor: GE	VRIg: D	& Matt	Start: 8/	dinates:		Sample Recovery (Inches)	24/10	24/1	24/8	24/40	24/18	24/14			EXPLANATION OF ABBREVIATIONS	ii Auger Auger Auger Y Y Cutabon
Cambridge, MA 02139	Client: Boston Parks and Recres Project Location: Leverett Pond	Drilling Contractor: GEO-TEK	Drilling Method/Rig: DTC/3" Split Spoon	Drillers: Glen & Matt	Drilling Date: Start: 8/21/00 End: 8/21/00	Borehole Coordinates:	ш	Sample									ă	Hollow Stem Solid Stem Hand Auger Aur Rolaw Dust Tube F Foam Rotary Reverse Circuits Cable Tool Cable Tool
CDM 50 Hampstrine Street Cambridge, MA 02139	Client: Project	P	D.	P-	Dul	Bon	z	Sample	SS	SS	SS	0	20	SS				PARTY BANK BANK BANK BANK BANK BANK BANK BANK

BOREHOLE LOG	Project Name: Muddy River Project Number: 1517-28449-SR-SEDSAMP.FIELD	Surface Elevation (ft.):	Total Depth (ft.): 14	Depth of Water (ft.): 1.5	Abandonment Method: Collapsed	Fleid Screening Instrument: OVM w/ 10.2 PID	Logged By: K Dillaway	Malerial Description	0-2": Wet, very loose, black, coarse to fine SAND, some organics.	2-4; As above.		4-8: As above.	6-8°. Top 10°. As above. Bottom 2°. Wet, very losse, black, coarse to fine SAND and GRAVEL.	8-10: Top 16": Wet, vary loose, black, medlum to fine SAND and SILT. Bottom 2": PEAT.	10-12": Wet, very loose, black, medium to fine SAND and SILT.	49, 484. Tan 48* An about	Bottom 6": Wet, very loose, grey, fine SAND, some peat (native).	End of Boring at 14 feet BGS	REMARKS	Reviewed by: J. M. C. M. (Le Date: 12/1/60)
B O LP-SE								Seratum			-						Т		-	Sample mpler re- re- re- rd
	ment							Graphic Log											SNO	Muger/Grab Sa Muger/Grab Sa California San California San Sapprobe Sapprobe Spiti Spoon Shilty Tube Wash Sampit Above Groun
	Depart		uou		/21/00			Blows per 6 Inches	WOR	WOR		WOH	WOH	WOR	WOR	2-	МОН		EVIATI	SAMPLING AS Call CS Call CS Call NX 2.1.8 NX 2.1.8 NX 2.1.8 NX 2.1.8 NX 3.8 NX NX CALL NX NX N
ш	reation		pilt Spo		End: 8			Inemutani bleiii gnibaeA (mqq)	0.0		¥	8.	₹ Z	A A		¥ Z	9.0		- ABBRI	9405554849564
McK	nd Reci	GEO-TEK	C/3" S		51/00			Elex. Depth (ft.)	0	-		2	1 ,	1	9		-	<u>π</u>	IO NO	
SSER 8	Parks ar	tor: GE	TRIg: DI	Matt	tart: 8/2	Inates:		Sample Recovery (inches)	24/18		24/12	24/16 -	24/12	24/18	1	24/22	24/24		EXPLANATION OF ABBREVIATIONS	ODS: Stem Auger benn Auger uger uger be Rotary iotary iotary iotary iotary ool casing
CAMP DRESSER & MCKEE CDM St. Harrpshire Street Centribridge, MA 02139	Client: Boston Parks and Recreation Department Project Location: Leverett Pond	Drilling Contractor:	Drilling Method/Rig: DTC/3" Spilt Spoon	Drillers: Glen & Matt	Drilling Date: Start: 8/21/00 End: 8/21/00	Borehole Coordinates:	ш	Sample											8	ING METHODS: Hollow Stem A- Hollow Stem A- Hand Auger Air Rotary Dual Tube Ro Rotary Mud Rotary Reverse Circ Cable Tool Jetting Dirking
Q 8 Q	Clier	Drilli	Drill	Drille	Drill	Bore	z	elqme2 aqyī	SS		SS	SS	SS	SS		SS	SS			A A A E E E E E E E E E E E E E E E E E

BOREHOLE LOG	Project Name: Muddy River Project Number: 1517-28449-SR-SEDSAMP.FIELD	Surface Elevation (ft.):	Total Depth (ft.): 14	Depth of Water (ft.): 3.5	Abandonment Method: Collapsed	Fleid Screening Instrument: OVM w/ 10.2 PID	Logged By: K Dillaway	Material Description	0-2: Wet, very loose, black, medium to fine SAND and organic SILT. Sheen and odor.	2-4: Wet, very loose, black, ORGANIC MUCK, trace sand.	4-6". Wei, very loose, black, medium to fine SAND and organic SILT. Petroleum odor.	6-8: As above.	8-10; As above.	10-12: Top 3*; As above. Bottom 2*: Wet, very loses, black, SILT and fine SAND, some organics.	12-14: Wet, medium dense, grey, fine SAND (native).	End of Boring at 14 feet BGS	REMARKS	Desilvaned by: T. MCon. 11. Dates 12 11/20
<u>в</u> 2								Stratum Designation									Sample ample of the sample of	MX 2.1 Plock Core QP Procedure HP Hydro Punch SP Spill Spoon \$1 - Sheby Tube The Hydro Punch ST - Sheby Tube QTHER: Add - Add
	tment							Graphic									ONS TYPES: per/Grab iformla S	Secprobe dydro Punch spill Spoon shelby Tube Vash Sample
	Depar		nou		722/00			glows ber	WOH	Push	Push Push 2	- 0. 80 1	0	WOH w	6==6		WPLING	Spire Spire
j	reation	×	Split Spo		End: 8/22/00			Inaminitani bleri gnibsefi (mqq)	6.1	N.	8.1	A A	A A	A Z	9.0		ABBRE	SSS WEET OF STATE OF
N N	nd Re	EO-TE	TC/3"		22/00			Elex, Depth (ft.)	0		ro lo	1		10	1 1 1	2	O NO	
Street	Parks a	stor: GE	VRIg: D	& Matt	start: 8/	dinates:		Sample Recovery (Inches)	24/10	24/1	24/14	24/22	24/14	24/5	24/18		EXPLANATION OF ABBREVIATIONS 108: 150: State of the control of the	be Rotary tary tary cod
COMMENSION A WORLD COMMENSION OF THE CAMPACING MA 02139	Client: Boston Parks and Recreation Department Project Location: Leverett Pond	Drilling Contractor: GEO-TEK	Drilling Method/Rig: DTC/3" Split Spoon	Drillers: Glen & Matt	Drilling Date: Start; 8/22/00	Borehole Coordinates:	ш	Sample									EXPLAN EXPLAN DRILUNG METHODS: H8A - Hollow Stem Auger SSA - Solad Stem Auger HA - Hand Alman	Air Rotary Dual Tube Hotary Fearn Rotary Mud Rotary Mud Rotary Reverse Circulation Lebiting Directory Directory
8 8	Ciler	Drill	Drill	Drill	Dri	Bore	z	Squiss adyT	SS	SS	SS	SS	SS	SS	SS		DRILLII HSA - SSA -	A PER

BOREHOLE LOG WL-SED-01	Project Name: Muddy River Project Number: 1517-2849-SR.SEDSAMP.FIELD	Curtana Elevation (6).	יייייייייייייייייייייייייייייייייייייי	lotal Depth (It.): 12	Depth of Water (ft.): 0	Abandonment Method: Collapsed	Field Screening Instrument: OVM w/ 10.2 PID	Logged By: JJ Callahan	Meterial Description	0-2: Moist, very loase, black to light brown (lan), coarse to fine SAND, trace organics (vegetation, decomposed vegetation). Strong petroleum odor.	2.4: Wat, very loose, black to light brown, medium to fine SAND, trace allt. Slight petroleum odor.	4-6: Wet, very loose, brown and black, medium to fine SAND, little silt, trace organics (peat, decomposed vegetation, sticks). Strong petroleum odor.	6-8: Top 11:: Wet, medium dense, light brown coarse to fine SAND, some slit, trace organics. Middle 3: Wet, medium dense, black, coarse to fine SAND (stahed). Boftom 8: Wet, metium dense prance coarse to fine SAND.	Oxidation at tip of spoon. 8-10:Top 15: Wet, medium dense, tan, coarse to fine SAND and SILT. Strieded with stained, black, medium to fine SAND. Bottom 9: Wet, medium dense, tan, SILT (native).	10-12: Top 11*: Wet, medium dense, tan, medium to fine SAND and SILT (native). Middle 1*: Wet, medium dense, oxidized (nust color) medium SAND (native).	Bottom 12: Wet, medium dense, lan, medium to fine SAND and SILT (<u>ratives</u>). — — — — — — — — — — — — — — — — — — —			REMARKS	Reviewed by: 3 M. M. M. M.
	i i								go.J muterti2	××××	******	******	*****	***						MPLING TYPES: MPLING TYPES: Califoria Sumple 115 Rock Cone 2.1 Rock Cone Geoprobe Hydro Punch Shalfs Boom Shalfs Boom Shalfs Boom Shalfs Rock Shalfs Tube Shalfs Tube Shalfs Tube Shalfs Tube Shalfs Tube Shalfs Tube Shalfs Shalf
	artme								Graphic		******	<u> </u>	******						SNOL	Auger/Grab Sam Callornia Samp 1.5° Rock Core 2.1° Rock Core Geoprobe Hydro Punch Skill Spoon Shelby Tube Wash Sample Above Ground
	Dap		1	non		00/6			Blows per 6 Inches	0 - 0 0	0	1(12")	v 5 = 5	8 6 5 5	e = t				VIAT	SAMPLING SAM
	creation	×	DTO 1211 Can	do mde		End: 8/			Prefurment bleid gribseR (mqq)	9.0	9.0	1.0	0.2	0:0	0.0				ABBRE	ASSET SESSON
	and Re	FO.TF	1 . C	2)		00/6/			Depth (ft.)	0	1 1	ro.			2		15		O NOL	
Street A 02139	Parks a	otor. G	in the second	and: L	& Mike	Start: 8	dinates		Sample Recovery (Inches)	24/10	24/3	24/8	24/24	24/24	24/24				EXPLANATION OF ABBREVIATIONS	THOOS: we stem Auger so Auger A Auger Cotany Tube Rotary n Rotary Rectary era Circulation e Tool
Cambridge, MA 02139	Client: Boston Parks and Recreation Department Project Location: Willow Pond	Orlillog Contractor: GEO-TEK	Colling Market Colling	no memo	Drillers: Dave & Mike	Drilling Date: Start: 8/9/00 End: 8/9/00	Borehole Coordinates:	m	Sample										EX	NG METHODS: Hollow Stem Auger Sold Stem Auger Air Rotary Dual Tube Rotary Mud Rotary Mud Rotary Mud Rotary Air Rotary Airting Cable Tool Cable
8 0	Clier	Drill				Dri	Bore	z	elqms2 eqvT	SS	SS	SS	SS	SS	SS					DRILLIN HSA SSA HAA HAA HAA HAA HAA HAA HAA HAA HAA HAA HAA HAA HAA HAA HAA

HOLE LOG	Project Name: Muddy River Project Number: 1517-28449-SR,SEDSAMP.FIELD	vation (ft.):	(ft.); 2	Depth of Water (ft.): 1.6	Abandonment Method: Collapsed	Field Screening Instrument: OVM w/ 10.2 PID	Logged By: J. Zametske	Manerial Description	0-2: Wet, black to grey, SILT and CLAY, some organics. Odor and sheen.	Bottom of Exploration at 2 feet BGS.				REMARKS	
BOREH WL-SED-02	Project Nam Project Num	Surface Elevation (ft.):	Total Depth (ft.):	Depth of Wa	Abandonme	Field Screen	Logged By:		0-2: Wet, black to sheen.	Bottom of Explora					
<u>m ></u>	_							Stratum Designation							Sample Sampler Core Core on on one one
	ırtmen				3/00			Graphic Log						SNOT	auger/Gre aultomia aultomia .s. Rock .1. Rock lacoprobe tydro Pun pili Spoo heiby Tul
	Depa				End: 10/18/00			Blows per 6 Inches						EVIAT	SAMPLING CS CC CS CC CS CC CGP C CGP C C CGP C CGP C C CGP C CGP C CGP C CGP C CGP C CGP C CGP C CGP C CGP C C CGP C C C CGP C C C C C C C C C C C C C C C C C C C
	creation		/Jebr					freminish blei7 freminish blei7 (mgq)						FABBE	0400Z0I0050
	nd Rec	MO	Hand Auger/	(pu)	0/18/00			Elex. Depth (ft.)	0		in .	9	 15	ONOL	
Street	Boston Parks and Recreation Department Location: Willow Pond	ctor: Cl	VRIg: H	red, & A	Start: 1(dinates:		Sample Recovery (inches)	24/12					EXPLANATION OF ABBREVATIONS	Auger Auger Disay
Combridge, MA 02139		Drilling Contractor: CDM	Drilling Method/Rig:	Drillers: Jay, Fred, & Andy	Drilling Date: Start: 10/18/00	Borehole Coordinates:	ш	Sample						E	MG METHOOS Hollow Stern Sold Stern Hand Auger Air Rotary Dust Tube R Foam Rotary Maud Rotary Cable Tool Jetting
CDM So Hampshire Street Cambridge, MA 02139	Client: Project	Drilli	Drilli	Drille	Drilli	Bore	z	Sample	ž						OFFILE SSA SSA SSA SSA SSA SSA SSA SSA SSA SS

BOREHO WL-SED-03	on Department Project Name: Muddy River Project Number: 1517-28449-SR.SEDSAMP.FIELD	Surface Elevation (ft.):	Total Depth (ft.): 2 Depth of Water (ft.):		Logged By: J. Zarnetske	(pmd) Blows per 6 Inches Craphic Log Stralum Crasium Designation	0-2" Wet, black to grey, fine SAND and SILT, some organics.	Bottom of Exploration at 2 feet BGS.	SHEVIATIONS	Abstract Abstract
CDIM 50 Hampshire Street Cambridge, MA 02139	Client: Boston Parks and Recreation Department Project Location: Willow Pond	Drilling Contractor: CDM	Drilling Method/Rig: Hand Auger/ Drillers: Jay, Fred, & Andy	Drilling Date: Start: 10/18/00 End: 10/18/00	N E	Sample Number Sample Sample Sample (another) Sample Sample Sample (body) (c) (c) (d) (d) (d) (d)	HA 24/16 -	ω ο φ.	EXPLANATION OF ABBREVATIONS	HORLAND MAN AND AND AND AND AND AND AND AND AND A

OREHOLE LOG	Project Name: Muddy River Project Number: 1517-28449-SR.SEDSAMP FIELD	Surface Elevation (ft.):	Total Depth (ft.): 2 Depth of Water (ft.): 3	Abandonment Method: Collapsed	Field Screening Instrument: OVM w/ 10.2 PID	Logged By: J. Zarnetske	Material Description	0-2': Wet, black to gray, fine SAND and SILT, some organics. Odor and shean.	Bottom of Exploration at 2 feet BGS.			REMARKS	Bouleaund ho. M. M. M. M. O. 1000 12.11.00
BORE WL-SED-04		Su	To To	Ab	Fle	b	Stratum notisingiaed	and sh	Bottom				aptium P
	Client: Boston Parks and Recreation Department Project Location: Willow Pond			10/18/00			(ppm) Graphic Graphic Log					REVIATIONS	"ANOO KEDE D
CDM Street Cambridge, MA 02139	and Recreation	MO	Drillers: Jay, Fred, & Andy	Drilling Date: Start: 10/18/00 End: 10/18/00			Per (f. f.)	0	lu lu	10	r r	EXPLANATION OF ABBREVIATIONS	
CDM 50 Hampshire Street Cambridge, MA 02139	Client: Boston Parks and Recre Project Location: Willow Pond	Drilling Contractor: CDM	Drilling Method/Rig: Hand Drillers: Jay, Fred, & Andy	e: Start: 1	Borehole Coordinates:		Sample Secovery (inches)	24/8				EXPLANA	METHODS: volice Stem Auger volice Stem Auger
CEDING ST. St. Sambridge, MA 0	ient: Bos oject Loc	Illing Cor	Illers: Ja	Illing Dat	rehole C	ш	Sample Number	H					DRILLING METHODS HSA Hollow Ster SigA Sold Stem HA Hand Auger OTR Dual Tibe F F F F F F F F F F F F F F F F F F F

BOREHOLE LOG WL-SED-05	Project Name: Muddy River Project Number: 1517-28449-SR.SEDSAMP.FIELD	Surface Elevation (ft.):	Total Depth (ft.): 4	Depth of Water (ft.):	Abandonment Method: Collapsed	Fleid Screening Instrument: OVM w/ 10.2 PID	Logged By: JJ Callahan	Material Description	0-2". Wet, medium dense, brown, coarse to fine, SAND, little fine gravel, trace glass, asphalt, and brick.	2-4: As above.	Bottom of Exploration at 4 feet BGS.				REMARKS	
B O WL-S	rtment							Graphic Log Shalum Designation	6 B	2	8				SNO	Wang TYPES: Augaridate Sample California Sample 1.5 Rock Core 2.1 Rock Core Geoprobe Hydro Puinch Sulf Spoon Sulf Spoon Mean Sample Above Ground
χ ΕΕ	Client: Boston Parks and Recreation Department Project Location: Willow Pond	EK	" Split Spoon		End: 8/9/00			tnemuntant blei-I gnibseA (mqq) sevold	0.0	0.0 22 28 28			7 1		EXPLANATION OF ABBREVIATIONS	ASMPHUNGTYPES: ASMPHUNGTYPES: ASSTANDANGTAN SERVICE BX 1.5 Reck Con GP Geograph GP Hydror Punch R3 Sell Sport T Sheeky Tube W8 W8 Wash Semile Som ANS ASMPTH SEMILE SEMILE SOM W8 W
CAMP DRESSER & MCKEE CONTROLL SO Hampshire Street Cambridge, Ma 02139	Client: Boston Parks and Recr Project Location: Willow Pond	Drilling Contractor: GEO-TEK	Drilling Method/Rig: DTC/3" Split Spoon	& Mike	Drilling Date: Start: 8/9/00 End: 8/9/00	rdinates:		Sample Recovery (Inches)	24/3 -	24/12	s l	 101	-11-	<u> </u>	PLANATION	Auger Auger Ottary Y Outation
CAMP DRESSER CAMP DRESSER So Hampshire Street Combridge, MA 02139	Client: Bostor	Orilling Contra	Orilling Metho	Drillers: Dave & Mike	Orilling Date:	Borehole Coordinates:	ш	Sample Number	SS	SS					ă	DBRILLING METHODS: HSA - Holion Stam Auger HSA - Holion Stam Auger HA - Hand Auger H - Pean Rosay PR - Pean Rosay HR - Pean Rosay HR - Pean Rosay HR - Rosay HR - Pean Rosay HR - Rosay HR - Pean Rosay HR - Pean Rosay HR - Rosay HR - Pean Rosay

BOREHOLE LOG WD-SED-1	Project Name: Muddy River Project Number: 1517-28449-SR-SEDSAMP.FIELD	Surface Elevation (ft.):	Total Depth (ft.): 8	Depth of Water (ft.): 4.2	Abandonment Method: Collapsed	Fleid Screening Instrument: OVM w/ 10.2 PID	Logged By: JLG	Material Description	0-2: Top 3". Defritus layer. Bottom 21": Wet, medium dense, black, ORGANIC MUCK, some medium sand.	2-4*; Wei, medium dense, black, ORGANIC MUCK, some medium sand.	4-6". No Recovery.	6-9: Wet, loose, dark grey,medium to fine SAND, some silt (native).	Bottom of Exploration at 8 feet BGS.				REMARKS	
∞ ≥								mutert2 notisengised										3.4APLING TYPES. AS Appendicts Barrote CS California Sampie N. 12. Tools Core N. 2.1" Roak Core N. 2.1" Roak Core HIP Hydro Funch Will Spon Will
	rtment							Graphic Log									ONS	1 TYPES: -gendrate Littornia S 6 Rock C 1
	Depa		noo		00/8,			g juches Blows per	0 1 0 1	100 F 4 4		∞ 4 ω ω κυ					EVIAT	AAMPLING A THE TO TO TO THE
H	reation		split Sp		End: 8/			Field Instrument Reading (mpm)	0.0	0.0							ABBE	0400Z0I00504
N N	nd Rec	90-Tek	TC/3° 8		8/00			Eler. Obepth (ft.)	0		ις.			0	1	0	 IO NOL	
Street A 02139	Parks a	ctor: Ge	d/Rig: D	& Dave	Start: 8/	dinates:		Sample Recovery (Inches)	24/123	24/12	24/0	24/20					EXPLANATION OF ABBREVIATIONS	B: Auger Auger Rotery ry roulation
COMP DATES OF A WORKER SO Hampshirs Street Cambridge, MA 02139	Cilent: Boston Parks and Recreation Department Project Location: Wards Pond	Drilling Contractor: Geo-Tek	Drilling Method/Rig: DTC/3" Split Spoon	Drillers: Matt & Dave	Drilling Date: Start: 8/8/00 End: 8/8/00	Borehole Coordinates:	,	Sample									ũ	MG METHODS: Hollow Stem Auger Solid Stem Auger Auf Rotary Aut Rotary Fean Rotary Mud Rotary Mud Rotary Autor Stem Rotary Autoriany Mud Rotary Mud Rotary Mud Rotary Autoriany Mud Rotary Mud Rotary Autoriany Autoriany Autoriany
S S S S S S S S S S S S S S S S S S S	Cilen	Drillin	Drillis	Drille	Drilli	Bore	z	Sample	SS	SS	SS	SS						DRILLIN HAS HAS HAS HAS HAS CT CT CT

CAMP DRESSER & McKEE CDM BOREHOLE LOG So Hampshine Street Cambridge, MA 02139 WD-SED-2	Client: Boston Parks and Recreation Department Project Name: Muddy River Project Location: Wards Pond Project Number: 1517-28449-SR-SEDSAMP.FIELD	Drilling Contractor: Geo-Tek Surface Elevation (ft.):	Drilling Method/Rig: DTC/3" Split Spoon Total Depth (ft.): 10	Drillers: Matt & Dave Depth of Water (ft.); 2.2	Orilling Date: Start: 8/3/00 End: 8/3/00	Borehole Coordinates: OVM w/ 10.2 PID	Logged By: JLG	Material Control of Co	24/9 - 0.0 18 come silt, little organics at surface.	24/0 0.0 9 4	24/8 - 5 - 0.0 51	24724 - 1 0.0 ao
D D D	308	Con	Mett	Ma	Date	CO		Sample			1	

Sheet 1 of 1

BOREHOLE LOG WD-SED-3

CAMP DRESSER & MCKEE

Project Number: 1517-28449-SR-SEDSAMP.FIELD

Surface Elevation (ft.): Total Depth (ft.): 2

Project Name: Muddy River

Client: Boston Parks and Recreation Department

50 Hampshire Street Cambridge, MA 02139 Project Location: Wards Pond

Drilling Method/Rig: Auger/ Drillers: Jay, Fred, & Andy

Drilling Contractor: CDM

Field Screening Instrument: OVM w/ 10.2 PID

Logged By: J. Zametske

Abandonment Method: Collapsed

Drilling Date: Start: 10/18/00 End: 10/18/00

Borehole Coordinates:

Depth of Water (ft.): 4.9

Material Description	0-2: Welt, grey, line SAND, some gravel.	Bottom of Exploration at 2 feet BGS.			REMARKS	Reviewed by: J. M. M. M. L. LO. Date: 12/1-00
Log mutent motiengis	s XXXXXX				BREVATIONS SAMPLING TYPES: CAS CASHOLING TYPES: CASHOLING TYPES	Surface
ows per Inches	9				//ATION/ //AUG TYPP - Augard - Callom -	Surface
Inemuntari gnibse (mqq)					EXPLANATION OF ABBREVIATIONS 3008: 3	
Elev. Depth		ın	0	2	- ONOF	
ucyes) econeux garubje	24/9				PLANAT Auger Otary	Casing
Sample					EXPLANA PRILLING METHODS SEA. Solid Stem Auger HAA. Hand Auger THA A Heady OTR Deal Toes found toes MR Water Bear Solid Stem MR Water Bear So	DAN Through
edyT	S ¥				DARLU HAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA	DTC
- ojouad	, , ,			00/+1	ODY_RIVER_BL MRWD.GPJ CDM MA.GDT 12.	

Bottom of Exploration at 10 feet BGS.

8-10": As above.

0.0

24/24

SS

Reviewed by: TMCMuller Date: 12/1/00

SAMPLIAND TYPES:
A SAMPLIAND TYP

REMARKS

EXPLANATION OF ABBREVIATIONS

MUDDY RIVER BL MRWD GPJ CDM MA GDT 12/14/00

15

BOREHOLE LOG	Project Name: Muddy River Project Number: 1517-28449-SR-SEDSAMP.FIELD	Surface Elevation (ft.):	Total Depth (ft.); 8	Depth of Water (ft.): 2.9	Abandonment Method: Collapsed	Field Screening instrument: OVM w/ 10.2 PID	Logged By: JLG		0-2: Top 7: Wet, medium dense, brown, organic SILT. Bottom 11": Wet, dense, dark grey, medium SAND.	2.4".Top 6". Wet, very dense, dark grey, medium SAND. Bottom 14". Wet, very dense, light grey, medium to fine SAND.	4-6": Wet, dense, light grey, medium SAND, some silt (native).	6-8: Wet, very dense, light grey, SILTY SAND (native).	Bottom of Exploration at 8 feet BGS.				REMARKS	The state of the s
ш>								mutant2 notisegeaeQ										Auger/Grab Sample California Sample 1.1 Rock Core 2.1 Rock Core Geoprobe Hydro Purch Spill Spoon Shelly Tube Wash Sample R. Above Ground
	tment							Graphic									ONS	Auger/Grab Celifamia S 1.6° Rock C 2.1° Rock C Geoprobe Mydro Pund Spill Spon Shelby Tube Wash Samy
	Depar		uou		00/1			Blows per 6 Inches	တ တ က	8 8 8 8	23 19 22	16 24 47 30					VIATING	
i I	reation		Split Spo		End: 8/4			tnamuntani bielii gnibseA (mqq)	0.0	0.0	0.0	0.0					ABBRE	ASS SS SS ASS ASS ASS ASS ASS ASS ASS A
	nd Red	no-Tek	TC/3.		4/00			Elex. Depth (ft.)	0	-	ro.	, , ,	0	1		0	O NOL	
Street V02139	Boston Parks and Recreation Department Location: Wards Pond	ctor: Ge	VRIg: D	& Dave	Start: 8/	dinates:		Sample Recovery (Inches)	24/18	24/20	24/23	24/24		-			EXPLANATION OF ABBREVIATIONS SAMPLING TYPE	Stem Auger uger uger uy be Fotary be Fotary colstary and col
CEMENTS Treet Cembridge, MA 02139		Drilling Contractor: Geo-Tek	Drilling Method/Rig: DTC/3* Split Spoon	Drillers: Matt & Dave	Drilling Date: Start: 8/4/00 End: 8/4/00	Borehole Coordinates:	m	Sample									EX	Hollow Stern Bold Stem A Hend Auger Alr Rottery Dual Tube R Four Rottery Reverse Circ Cable Tool
80	Cilent: Project	Drill	Drill	Drille	Drill	Bore	z	edyT	SS	SS	SS	SS					DAM LIN	SSSA SSSA SSSA SSSA SSSA SSSA SSSA SSS

BOREHOLE LOG WD-SED-5	Project Name: Muddy River Project Number: 1517-28449-SR-SEDSAMP.FIELD	Surface Elevation (ft.):	Total Depth (ft.): 10	Depth of Water (ft.): 1.3	Abandonment Method: Collapsed	Field Screening Instrument: OVM w/ 10.2 PID	Logged By: JLG	Material Description	G-2: No recovery.	2-4". Top 9". Wet, dense, grey, organic, SILT and MUCK. Bottom 9". Wet, dense, grey, coarse SAND.	4-6': Wei, dense, light grey, coarse SAND, some small gravel.	e-8". Wet, medium dense, light grey, coarse SAND, rock stuck in tip of spoon.	8-10: Top 5": Wet, very dense, grey, medium SAND.	Bottom 5". Wet, dense, grey, fine SAND, some sitt (native).	Bottom of Exploration at 10 feet BGS.	BEKARKS	
 ⊗ ⊠	nent							eaphic Log Logum Stramm Designation					***			- u	Adjustication of the control of the
	on Departr		Spoon		8/3/00			(mpq) Blows per 6 Inches	4 4 4 4	© % 5 ₹	2885	∞ 57 57 S	2 8	39 30		BEVIATIO	SAMPLING TYPES: SAMPLING TYPES: Callionia Sa. SX. 1.5 Rock Co. NX. 2.1 Rock Co. G. Gallionia Sa. SX. 2.1 Rock Co. G. G. Gallionia Sa. SX. 2.1 Rock Co. SX. 2.1
CDM Street Cambridge, MA 02139	Boston Parks and Recreation Department Location: Wards Pond	Geo-Tek	Drilling Method/Rig: DTC/3* Split Spoon		Drilling Date: Start: 8/3/00 End: 8/3/00			C (ft.)	0		lo.			, c	5 \phi	EXPLANATION OF ARRENIATIONS	
re Street	Client: Boston Parks and Recr Project Location: Wards Pond	ctor: Ger	d/Rig: DT	& Dave	Start: 8/3	rdinates:		Sample Recovery (inches)	24/ -	24/18 -	24/20	24/3	0,110	24/10		TANA IO	n Auger Auger Potary cuteffon
CDDM 50 Hampshire Street Cambridge, MA 02139	it: Boston	Drilling Contractor:	ng Metho	Drillers: Matt & Dave	ng Date:	Borehole Coordinates:	ш	Sample								ă	NG METHODS: Hollow Stem Solid Stem As Hand Auger Hand Auger Dust Tube Bo Foan Rotary Revence Circ. Cable Tool Dustring
0 00 00	Client:	Drills	Drill	Drille	Drill	Bore	z	Sample	SS	SS	SS	SS	9	3			DRILLIN HSA SSA AAA PFR MMR CT

Sheet 1 of 1 Reviewed by: J. M&Mailes Date: 12-11-90 0.2". Wet, medium dense, grey, coarse SAND, some fine gravel, trace wood. 4-6": Wet, very dense, grey, coarse SAND, some fine gravel, little sift. 2-4°: Top 8°: Wet, very dense, grey, coarse SAND, some fine gravel, trace detritus.

Bottom 2°: Wet, very dense, grey, SILT. Project Number: 1517-28449-SR-SEDSAMP.FIELD 6-8" Wet, medium dense, grey, coarse SAND, some medium silt (native). Field Screening Instrument: OVM w/ 10.2 PID LOG REMARKS Abandonment Method: Collapsed Project Name: Muddy River Bottom of Exploration at 8 feet BGS. BOREHOLE WD-SED-6 Depth of Water (ft.): 3 Surface Elevation (ft.): Total Depth (ft.): 8 Logged By: JLG Heading (ppm)

Reading)

Reading)

Blows per 6 Inches 6 Inches Log

Casphic Log

Stratum Cilent: Boston Parks and Recreation Department EXPLANATION OF ABBREVIATIONS 4 6 1 9 4 2 2 8 8 2 4 4 5 Drilling Date: Start: 8/3/00 End: 8/3/00 Drilling Method/Rig: DTC/3* Split Spoon CAMP DRESSER & MCKEE Project Location: Wards Pond Sample Recovery (Inches) Drilling Contractor: Geo-Tek 0 15 Borehole Coordinates: Drillers: Matt & Dave 24/10 50 Hampshire Street Cambridge, MA 02139 24/20 24/8 24/9 CDM Sample elqme2 eqvT SS SS SS SS NDDY_RIVER_BL MRWD.GPJ CDM_MA.GDT 12/14/00



ATTACHMENT F-3

PREVIOUS ENVIRONMENTAL STUDIES SUMMARY ANALYTICAL RESULTS

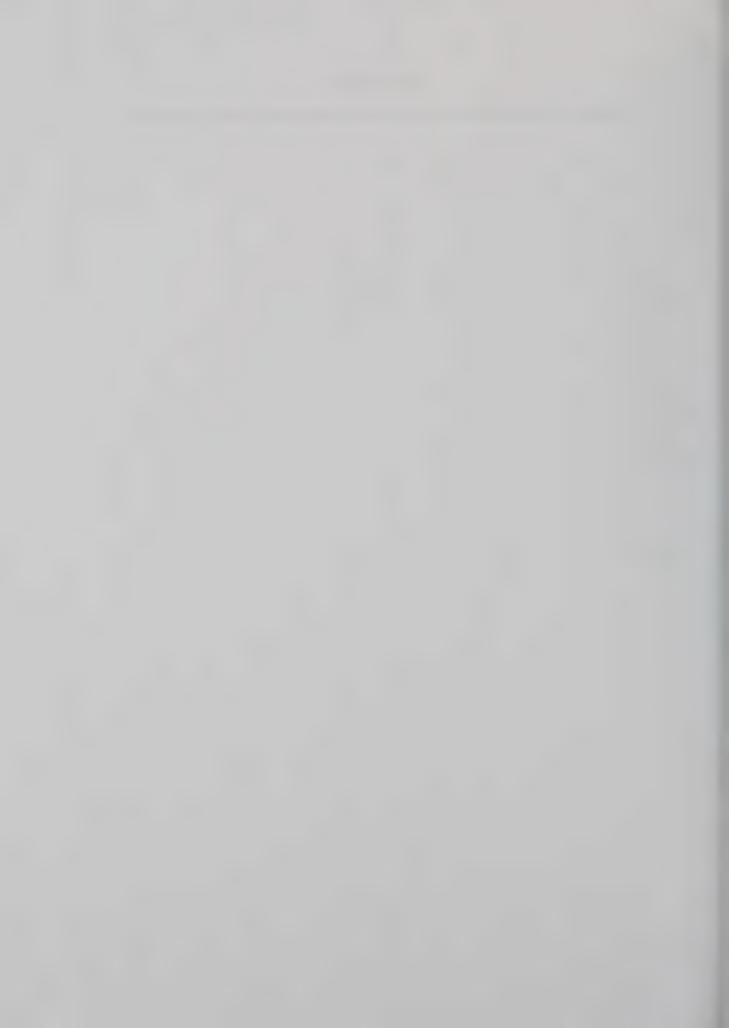


Table 4.1

SUMMARY OF ANALYTICAL RESULTS MUDDY RIVER CONDUIT

Analype Analype Units Desection Desectio							လ	Concentrations				
Colonia Ave Upstream Upstre							San	ple Location				
10 10 10 10 10 10 10 10		, e	Dotoctha	Brookling A.m.	Brookline Ave	Upstream	Upstream		Upstream		7 7 7 7 7 7	
10 ct 10 c			Limit	Gate House		Manhole 170	Manhole 171	MA Tpke	Structure	Structure	Manhole 2	Manhole Y
organica (ABN) ug/L 0.05—1 ND ND <th>TCLP Volatile Organics (VOAS)</th> <td>ng/L</td> <td>5-10</td> <td>Q</td> <td>Q</td> <td>Q</td> <td>QN</td> <td>QN</td> <td>ND</td> <td>QN</td> <td>QN</td> <td>QN</td>	TCLP Volatile Organics (VOAS)	ng/L	5-10	Q	Q	Q	QN	QN	ND	QN	QN	QN
ug/L 0.05-1 ND <	TCLP Semi-Volatile Organics (ABN)		10-20	Q	Q	QN	Q	QN	QN	ND	QN	QN
ug/L ug/L ug/L ug/L ug/Kg 3 318 239 220 230 472 1,910 1,910 21 880 21 1,350 21 550 23 620 21 620 23 620 3,640 ND rbons ug/L ug/L ug/Kg 222 610 11,910 ND 5,080 8,950 ND 8,950 2,350 ND 2,350 3,640 ND 3,640 ND rbons mg/Kg 20 220 610 11,000 ND 20,000 25,000 68,500 13,000 38,300 38,300 rbons 100 ND 120 11,900 120 25,000 25,000 103,000 103,000 53,400 53,400 mg/Kg 6 ND 120 1,900 190 800 ND ND 55,5 76.1 37.5 53.9 50.5 mg/Kg 6 ND 190 190 ND 55.5 76.1 37.5 50.5 50.5 - - - - Free Liquid Delected Free Liquid Delected Free Liquid Delected Free Liquid Delected 53.20 50.5 53.9 50.5	TCLP Pesticides	ng/L	0.05-1	QN	Q	QN	QN	QN	QN	ND	QN	QN
ug/L 3 318 472 880 1,350 550 620 ug/L 3 8 16 92 69 7 16 ug/L 7 ND 17 ND 21 ND ND ug/L -35 239 1,910 5,080 8,950 2,350 3,640 ug/L - ND ND ND ND ND ND ug/L - ND ND 11,000 20,000 69,500 38,300 ug/Kg 20 220 610 11,000 25,000 103,000 53,400 ug/Kg 100 ND 120 1,900 800 ND 53,400 wg/Kg 10 ND 120 1,900 800 ND 53,400 mg/Kg 6 ND 181.1 72.3 55.5 76.1 37.5 50.5 - - - - - -	TCLP Herbicides	ng/L	0.4-2	QN	Q	QN	QN	QN	QN	ND	QN	QN
ug/L ug/L ug/L ug/L 3 318 8 472 16 16 17 17 18 19 880 92 16 19 1,350 1,360 1,3	TCLP RCRA Metals											
m ug/L 3 8 16 92 69 7 16 m ug/L 7 ND 17 ND 17 ND ND ND ug/L -35 239 1,910 5,080 8,950 2,350 3,640 ug/L ND ND ND ND ND ND lydrocarbons mg/Kg 20 220 610 11,000 20,000 69,500 36,400 sse mg/Kg 20 280 930 13,000 25,000 103,000 53,400 sse ng/Kg 100 ND 120 1,900 800 ND ND mg/Kg 6 ND 55.5 76.1 37.5 53.9 est - Free Liquid Free Liquid Free Liquid Free Liquid Free Liquid Free Liquid Detected Detected	Barium	ng/L	0	318	472	880	1,350	550	620	700	1,280	1,000
Harden	Cadmium	ng/L	က၊	ω :	9 !	95	69	7	16	98	52	40
ug/L ug/L ug/Kg 35 239 1,910 1,910 ND ND ND S3,400 35,400 10,000 3,640 20,000 ND S3,400 ND S3,55 ND S3,505	Chromium	ng/L	~ :	ON C	17	ON S	21	QN .	QN	QN	OZ	44
ug/L ND N	Marciny	ug/L	32	523 CN	0,910	080's	8,950 ND	2,350	3,640 CN	6,730 ND	3,130	10,700
Hydrocarbons mg/Kg 20 220 610 11,000 20,000 69,500 38,300 ase mg/Kg 20 280 930 13,000 25,000 103,000 53,400 ug/Kg 100 ND 120 1,900 800 ND ND mg/Kg 6 ND 660 24 320 328 216 mg/Kg 6 ND 190 ND Free Liquid Detected	Other	ng/L	1	2	2	Q.	S O	2	Q.	S S	2	2
mg/Kg 20 280 930 13,000 25,000 103,000 53,400 mg/Kg 100 ND 120 1,900 800 ND ND mg/Kg 6 ND 660 24 320 328 216 mg/Kg 6 ND 190 ND 320 232 50.5 est - - Free Liquid Betected Detected	Petroleum Hydrocarbons	mg/Kg	20	220	610	11,000	20,000	69,500	38,300	3,050	25,000	4,600
ug/Kg 100 ND 120 1,900 800 ND ND % 1 81.1 72.3 55.5 76.1 37.5 53.9 mg/Kg 6 ND 190 ND 320 232 216 mg/Kg 6 ND 190 ND 320 232 50.5 est - - Free Liquid Free Liquid <t< th=""><th>Oil and Grease</th><td>mg/Kg</td><td>20</td><td>280</td><td>930</td><td>13,000</td><td>25,000</td><td>103,000</td><td>53,400</td><td>4,750</td><td>39,000</td><td>5,700</td></t<>	Oil and Grease	mg/Kg	20	280	930	13,000	25,000	103,000	53,400	4,750	39,000	5,700
mg/Kg 6 ND 660 24 320 328 216 mg/Kg 6 ND 190 ND 190 ND 320 232 50.5 est - Free Liquid Free	PCB	ug/Kg	100	QN	120	1,900	800	S.	· QN	QN	QN	400
mg/Kg 6 ND 660 24 320 328 216 mg/Kg 6 ND 190 ND 320 232 50.5 - - - Free Liquid Detected Detected Detected Free Liquid Detected Detected Free Liquid Detected Detected	Total Solids	*	-	81.1	72.3	55.5	76.1	37.5	53.9	76.1	41.2	79.5
mg/Kg 6 ND 660 24 320 328 216 mg/Kg 6 ND 190 ND 320 232 50.5 - - - Free Liquid Free Liquid Free Liquid Free Liquid Free Liquid Free Liquid Detected Detected Detected Detected Detected Detected Detected	Reactivity											
mg/Kg 6 ND 190 ND 320 232 50.5 Free Liquid Free Liquid Free Liquid Free Liquid Detected Detected Detected Detected Detected	Cyanide	mg/Kg	9	O.	099	24	320	328	216	72.9	QN	QN
Free Liquid Pree Pree Liquid Pree Pree Liquid Pree Pree Pree Pree Pree Pree Pree Pre	Sulfide	mg/Kg	9	Q.	190	Q	320	232	50.5	65.5	2	Q
	Paint Filter Test	ı	1	Free Liquid	Free Liquid	Free Liquid	Free Liquid	Free Liquid	Free Liquid	Free Liquid	Free Liquid	Free Liquid
									0000000			

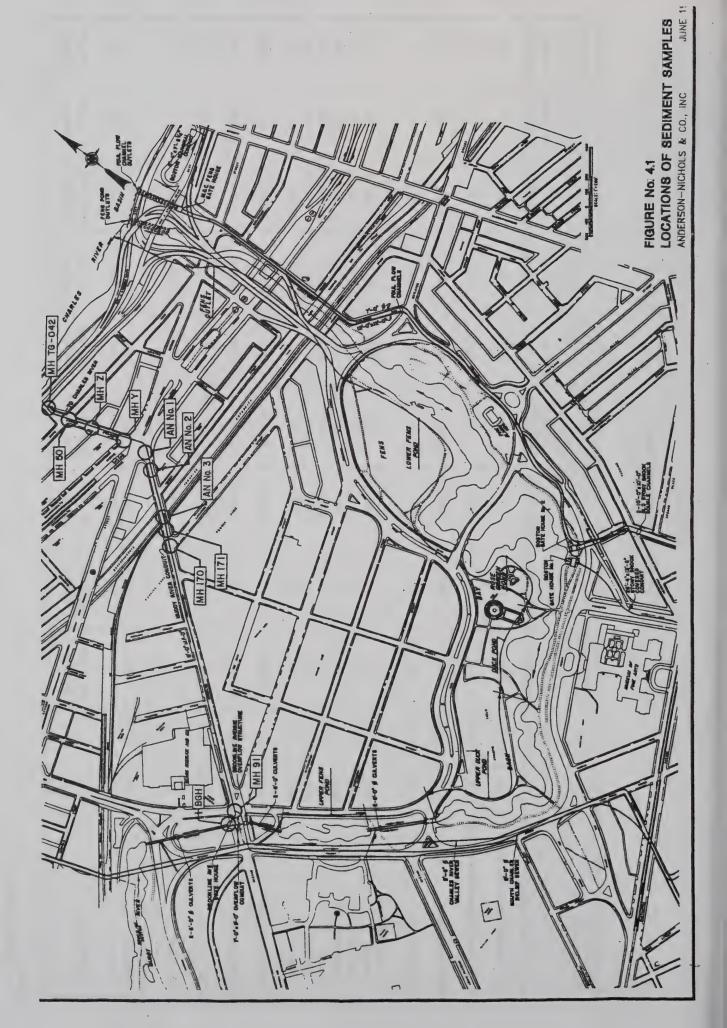


Table C-3: Results of 1992 Corps of Engineers Muddy River Sediment Analysis^{a,b}

S-1 S-2 ^c S-3 ^d Arsenic 2.1 8.2 17 Cadmium < 0.7 4.6 1.7 Chromium 17 150 30		S-3q		p2 v		t	
2.1 8.2 <0.7 4.6 17 150			D-4	o-5	0-0	/-h	%-8°
<0.7 4.6 17 150		17	19	20	19	31	23
17 150		1.7	1.9	5.2	1.9	1.3	2.2
		30	46	130	44	37	53
Copper 56 310 170	5 310	170	230	570	170	220	230
Lead 220 1400 410		410	730	2100	420	350	380
Mercury 0.2 1.6 0.8		8.0	1.6	3.2	6.0	0.2	0.7
Nickel 12 45 28		28	42	72	32	35	37
Zinc 130 630 350		350	460	099	290	360	450
Petrol. Hydr. 530 16000 1400		1400	4000	11000	1300	1200	1800
PCBs 0.6 - 0.8 -	ı		3.6	1 1			
% Fines ^f <1 62 67		29	64	50	36	37	30
		9 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0					

a: Samples collected June, 1992. b: All values in mg/g unless noted.

c: Sample collected from within Phragmites stands. d: Sample analysed for TCLP metals and volatile and semi-volatile organics.

e: Mean excludes Sample S-1. f: See Attachment I for grain size curves.

Parameter	Back Bay Fens	S					
	S-9	S-10	S-11 ^d	S-12 ^{c.d}	S-13	S-15°	S-16 ^d Mea
Arsenic	21	24	10	30	8.9	14	31
Cadmium	6.5	4.9	6.2	12	<1.3	7.1	2.8
Chromium	590	38	61	93	30	91	49
Copper	069	240	360	1000	160	340	270
Lead	1900	390	1100	1800	490	870	099
Mercury	6.4	1.4	9.0	1.6	1.4	2.0	2.2
Nickel	100	28	38	52	23	43	35
Zinc	1400	510	720	1500	390	630	770
Petrol. Hydr.	4200	1400	4400	1500	260	2100	530
PCBs	- 1.8	2.6 -		- 0.3	1.8		
% Fines ^f	42	36	19	25	59	49 28	43

4.0 1.7

Parameter			Sample	Locations	Sample Locations - Riverway				
	92-1	92-2	92-3	92-4	92-5	92-6	92-7	92-8	Mean
Metals									
Arsenic	2.1	. 8	17	19	20	19	31	23	20
Cadmium	< 0.7	4 ₁	1.7	6.1	5.2	1.9	м. н . ы	2.2	2.7
Chromium	17	150	30	46	130	44	37	53	70
Copper	ស	310	170	230	570	170	220	230	270
Lead	220	1400	410	730	2100	420	350	380	830
Mercury	0.2	7.6	0.8	1.6	3.2	6.0	0.2	0.7	1.3
Nickel	12	4.5	28	42	72	32	35	37	42
Zinc	130	630	350	460	099	290	360	450	460
ТРН	530	16000	1400	4000	11000	1300	1200	1800	5.240
PCBs	.9.0	t	8.0	ı	3.6	1	ı	1	2.2
* Fines	۲ >	62	67	64	50	36	37	3.0	4 9

- 1: Samples collected June, 1992.

- All values in mg/kg dry weight unless noted.
 Sample collected from within Phragmites stands.
 Sample analyzed for TCLP metals and volatile and semi-volatile organics.
 Mean excludes Sample 92-1.
 See Attachment I for grain size curves.

Table C-3: Continued.

Parameter		Sam	pling Loca	Sampling Locations - Back Bay Fens	ck Bay Fens			
	92-9	92-10	92-11	92-12	92-13	92-15	92-16	Mean
Metals								
Arsenic	. 21	24.	10	30	8.8	14	31	20
Cadmium	6.53	6.	6.2	12	<1.3	7.1	2.8	ω
Chromium	590	3 8	61	93	30	16	4	414
Copper	069	240	360	1000	160	340	270	440
Lead	1900	390	. 1100	1800	490	870	099	1030
Mercury	6.4	1.4	9.0	1:6	1.4	2.0	2.2	2.2
Nickel	100	28	œ m	52	23	43	3.5	4.
Zinc	1400	510	720	1500	390	630	770	850
ТРН	4200	1400	4400	1500	260	2100	53.0	2060
PCBs	ı	٦.8	2.6	1	•	1 .	0.3	1.6
* Fines	42	36	19	23 53	ę n	49	28	3.9

1: Samples collected June, 1992.

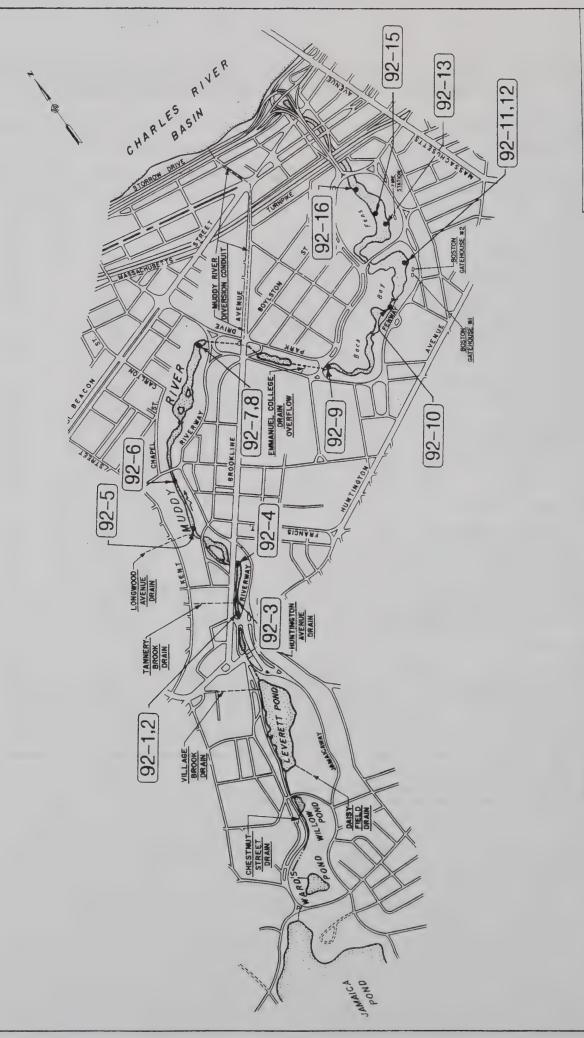
2: All values in mg/kg dry weight unless noted.3: Sample 92-12 collected from within Phragmites stands.

4: Sample 92-11, 92-12, 92-16 also analyzed for TCLP metals and volatile and semi-volatile organics.
5: Sample 92-14 not collected.
6: See Attachment C-2 for grain size curves.

Table C-4: Volatile and Semi-volatile Organic Compounds Detected in Muddy River Sediments During 1992 Corps Testing.

Parameter		Sample I	ocation1,2	
	92-3	92-5	92-11	93-1
PAHs				
pyrene	65	32	29	19
fluoranthene	25	10	12	5.2
chrysene	24	9.1	7.2	4.9
benzo(a)anthracene	24	7.3	6.3	4.3
phenanthrene	22	9.6	13	2.2
indeno(1,2,3-cd)pyrene	18	6.4	4.1	7.0
benzo(k)fluoranthene	18	5.6	5.8	6.1
benzo(b)fluoranthene	17	5.4	5.6	5.9
benzo(a)pyrene	16	5.5	5.1	4.9
benzo(g,h,i)perylene	13	5.6	5.6	6.7
anthracene	6.5	2.3	2.3	1.2
dibenz(a,h)anthracene	3.8	1.0	1.0	0.9
dibenzofuran	3.0	0.9	1.4	0.5
fluorene	2.4	1.7	1.9	0.8
napthalene	2.6	0.7	1.6	0.5
acenaphthene	1.9	1.2	1.4	0.3
2-methylnapthalene	1.3	0.6	1.1	0.4
acenaphthylene	0.3	0.2	0.2	0.4
Total PAHs	264	105	104	71
Other Semi-Volatiles				
1,4-dichlorobenzene	0.10	0.22	0.32	_
1,2-dichlorobenzene	~	-	0.25	0.23
2-methylphenol	0.10	_	-	_
4-methylphenol	0.40	0.44	_	_
diethylphthalate	0.10	0.09	0.32	_
di-n-butylphthalate	0.31	0.29	20	1.2
butylbenzylphthalate	, -	0.51	-	_
bis(2-ethylhexyl)phthalate	1.9	6.7	7.7	1.8
Volatiles				
Acetone	0.26	0.47	0.31	0.22
Carbon disulfide	0.01	0.01	0.01	0.01
Methylene chloride	0.05	0.04	0.06	0.11
2-butanone	0.08	0.17	0.12	0.10
toluene	-	0.01	-	_
O-Xylene	-	0.01	0.01	_

See Plate C-1 for sample locations.
 All values in mg/kg on a dry weight basis.



NOTES:
ALL SAMPLES WERE CORES TAKEN TO A DEPTH OF ABOUT 2 FEET.
SAMPLES S-2, S-8, S-12 AND S-15 WERE TAKEN WITHIN PHRACMITES STANDS.

SCM E

MUDDY RIVER RECONNAISSANCE STUDY
JUNE 1992-SEDIMENT
SAMPLING STATIONS

Table C-6: Results of Corps 1995 Sediment Tests Conducted in Conjunction with Biotoxicity Tests.

Parameter		Sam	ple Loca	ition	
	95-1	95-2	95-3	95-4	95-5
Total Organic Carbon (%)	11.0	6.4	17.0	6.0	16.0
TPH (mg/kg)	28000	6800	19000	5300	9700
Metals (mg/kg)					
Mercury	0.80	< 0.30	0.90	0.40	1.0
Lead	1600	290	650	320	850
Arsenic	19	4.4	9.5	3.1	11
Cadmium	6.9	1.5	4.0	1.1	3.4
Chromium	390	31	85	26	61
Copper	390	120	280	98	260
Nickel	47	15	37	19	29
Zinc	870	330	710	300	490
Total PAHs (mg/kg)	134	240	. 165	135	83
Total PCBs (mg/kg)	0.37	0.10	0.16	0.31	1.6
Selected Pesticides (ug/kg)					
Heptachlor	20	< 1.1	<1.8	10	17
a,g-Chlordane	176	79	93	18	38
4,4'-DDE and 4-4'-DDD	1010	169	286	70	433
4-4'-DDT	78	42	50	29	100
Endrin	53	31	43	< 3.3	< 6.0
beta-BHC	45	69	37	46	38

All values presented on dry weight basis.
 See Figure C-1 for sample locations.

Table C-7: Volatile and Semi-volatile Organic Compounds Detected in Sediment Tests Conducted in Conjunction with 1995 Corps Biotoxicity Testing.

Parameter		Sar	mple Location	on	
	95-1	95-2	95-3	95-4	95-
AHs (mg/kg)					
pyrene	36	40	32	29	:
fluoranthene	19	34	26	18	
chrysene	12	18	14	11	6
benzo(a)anthracene	8.3	17	11	10	5
phenanthrene	9.1	22	14	14	7
benzo(k)fluoranthene	14	31	20	14	
benzo(b) fluoranthene	13	29	18	13	9
benzo(a)pyrene	10	21	14	10	7
indeno(1,2,3-cd)pyrene	2.7	5.5	4.0	2.4	2
benzo(g,h,i)perylene	3.0	4.5	3.8	2.3	2
anthracene	2.1	6.2	2.8	4.0	1
dibenz(a,h)anthracene	0.6	1.2	0.7	0.5	C
dibenzofuran	0.4	1.6	0.6	1.2	0
fluorene	1.3	3.4	1.9	2.4	0
napthalene	0.3	1.2	0.3	0.7	0
acenaphthene	0.9	2.5	1.2	2.0	0
2-methylnapthalene	0.4	0.9	0.4	0.6	0
acenaphthylene	0.5	0.6	0.4	0.3	C
Total PAHs	134	240	165	135	8
Other Semi-Volatiles (ug/kg)					
2-methylphenol		1.1		0.2	
4-methylphenol	0.3				
diethylphthalate	0.4	0.3	0.6	0.1	C
di-n-butylphthalate	0.5	1.0	1.9	0.5	1
butylbenzylphthalate	0.7	0.7	0.8	1.5	С
bis(2-ethylhexyl)phthalate	40	30	48	17	
Volatiles (ug/kg)					
dichlorodifluoromethane	370	1500	1000	270 150	7
dichloromethane	170	430	320	150	
1,2,4-trimethylbenzene	34	4.0	83		4
toluene p-isopoplytoluene		41 93			1

See Figure C-1 for sample locations.
 All values presented on a dry weight basis.

Table C-8: Results of 1996 Corps Muddy River Sediment Tests

Sample	Depth	Section	Inde	, and a			i i
	oi Coie		mg/kg)	(mg/kg)	Cyanide (mg/kg)	(mg/kg)	(mg/L)
96-1	42"	Top 16" Bottom 16"	16000	0.37	< 0.5 < 0.5	880	1 1
96-2	48.	Top 24" Bottom 24"	24000	0.97	< 0.5 < 0.4	1000	3.1
96-3	05	Top 25" Bottom 25"	790	0.03	< 0.3 < 0.3	680	1 1
96-4	40	Top 20" Bottom 20"	2700	0.05	0.4	82 260	1 1
5-96	84	Top 24" Bottom 24"	37000 2400	1.1	3.4 < 0.5	1500	2.7
9-96	09	Top 24" Bottom 24"	38000 22000	8.1	5.7 < 0.5	2000	5.4
L-96	09	Top 20" Bottom 33"	36000	9.1	2 0.8	1800	0.9
	Mean	Top Bottom	22070	2.8	1.4 < 0.4	1140	1 1

Notes:

Samples collected on 12 April 1996
 Samples 96-4 and 96-7 taken from within *Phragmites*

1995 and 1996 Sampling Locations

DETAILED VICINITY MAI MUDDY RIVER

3624

Table C-9: Results of 1997 U.S. Geological Survey Sediment Tests.

Lead Fange RAY-CAMPS Table	Parameter			Samp	Sample Location		
Carbon (*) 9.0 8.6 - 9.3 7.6 7.0 - 10.5 10.4 3.9 - 10.4 2400 24000 21000 - 27000 18000 9800 - 30000 28000 4700 - 24000 21000 - 27000 18000 9800 - 30000 28000 4700 - 270 - 3.0 3.0 4.2 6.6 6.0 8.3 4.2 11.4 - 1.4 4.2 2.5 4.1 11.4 11.4 11.4 11.4 11.4 11.4 11.		Leveret		Rive	rway (n=5) range	Back Ba mean	Y Fens (n=8) range
1.00 1.00	Total Organic Carbon (%)	0.6	6 - 9.	7.6	- 10.	10.4	- 13.
1.3 1.2 1.4 2.5 1 6 3.1 1.4 1.	TPH (mg/kg)	24000	ŧ	18000	1	28000	- 1
1.3	Metals (mg/kg)						
156 1140 1156 115	Mercury	1.3	1	2.5	ě	3.1	- 1
2.2	Lead	788	1	631	- 4	1140	- 1
82 41 - 122 64 23 - 112 122 148 75 64 85 - 112 121 121 121 122 122 123 - 240 246 116 - 448 45 456 86 - 86 - 86 - 87 24 240 246 248 245 252 - 879 252 - 879 821 220 220 220 220 220 220 220 220 220 2	Cadmium	2.2	ž.	3.0	1	ω . α	1
222 203 - 240 246 116 - 448 456 156 16 - 4 18 - 4 3 456 86 9	Chromium	82	1	64	- 1	121	1
29 32	Copper	222	1	246	ł	456	- 1
551 527 574 487 225 879 821 220 220 220 220 220 220 220 220 220 2	Nickel	29	1	32	1	4	- 1
255 189 - 321 153 61 - 342 138 58 - 88 - 8 - 9 - 321 0.29 0.29 0.26 - 0.69 2.20 0.06 - 0.69 2.20 0.06 - 0.66 2 2.20 0.06 - 0.69 2.20 0.06 - 0.69 2.20 2.20 2.20 2.20 2.20 2.20 2.20 2.2	Zinc	551	-1	487	1	821	F
s (ug/kg) a+gamma) 472	Total PAHs (mg/kg)	255	· I	153	i	138	- 1
s (ug/kg) 472 . 265 - 680	Total PCBs (mg/kg)	0.21	1	0.29	- 1	2.20	- 1
a+gamma 472 265 - 680 112 12 - 216 114 7 - 7 - 7 - 7 - 100 195 160 - 230 130 11 - 260 192 150 - 150	Selected Pesticides (ug/kg)						
195 160 - 230 130 11 - 260 192 150 - 150 - 150 1785 370 - 3200 841 26 - 2000 580 46 - 100 74 38 - 110 29 13 - 50 63 <20 - 100	Chlordane (alpha+gamma)	472	- 1	112	1	114	ŧ
. 1785 370 - 3200 841 26 - 2000 580 46 - 74 38 - 110 29 13 - 50 63 <20 -	4,4'-DDE	195	- 1	130	F	192	1
74 38 - 110 29 13 - 50 63 <20 -	4,4'-DDD	1785	1	841	ı	580	1
1.3 1.1 - 1.4 1.2 0.28 - 2.2 1.6 0.70 -	4,4'-DDT	74	1	29	- 1	63	1
	TCLP - Lead (mg/L)	1.3	- 1	1.2	. 28	1.6	1

All data given on dry weight basis.

3.5.

PCB value is sum of Aroclors 1242, 1254, and 1260; Other aroclors below method detection limit. If concentration in a sample was below method detection limit, mean was calculated using one-half the detection limit as the value.

RII Resource Laboratories, Inc.

124 Heritage Avenue Unit 10 Portsmouth, NH 03801 Voice: 603-436-2001 FAX: 603-430-2100

Karen Leavitt Gemini Geotechnical Associates, Inc. 1 Cate Street Portsmouth, NH 03801 PO Number: 96011MA Lab No: 8919 Date Received: 10/07/98 Date Reported: 10/22/98

Project:DWP

Attached please find results for analyses performed on samples received on 10/07/98.

Samples were received in acceptable condition and under chain of custody.

Instruments used in analysis were calibrated with the appropriate frequency and to the specifications of the referenced methods.

Analytes in blanks were below levels effecting sample results.

Matrix effects as monitored by matrix spike recovery or unusual physical properties were not apparent.

Accuracy and precision as monitored by laboratory control sample analyses were within acceptance limits.

RESOURCE LABORATORIES

Authorized Signature

Date 10/22/98

Laboratory ID: 8919-01 Cleint ID: SED-OUT Date Collected: 10/07/98 10/07/98 Date Received: 10/08/98 Date Extracted: 10/13/98 Date Analyzed: Solid Matrix: Satisfactory Containers: Sample Preservation: cold

Temperature: Received on Ice
Extaction Method: SW-846-3550A

EPH ANALYTICAL RESULTS

Method for Ranges: MADEP EPH 98-1 Method for Target Analytes: EPA 8270C

EPA Surrogate Standards
Aliphatic: 1-chlorooctadecane
Aromatic: o-terphenyl
EPH Fractionation Surrogates
2-fluorobiphenyl
2-bromonaphthalene

Dilution Factor:		1		
RANGE/TAP	RGET ANALYTE	Result	RL	Units
Unadjusted	C11-C22 Aromatics (1)	670	20	ug/g
	naphthalene	U	2	ug/g
Diesel PAH	2-methylnaphthalene	U	2	ug/g
Analytes	acenaphthylene	U	2	ug/g
	acenaphthene	U	2	ug/g
	fluorene	U	2	ug/g
	phenanthrene	Ü	2	ug/g
	anthracene	U	2	ug/g
	fluoranthene	U	2	ug/g
Other	pyrene	U ·	2	ug/g
Target PAH	benzo(a)anthracene	U	2	ug/g
Analytes	chrysene	U ,	2	ug/g
	benzo(b)fluoranthene	U	2	ug/g
	benzo(k)fluoranthene	U	2	ug/g
	benzo(a)pyrene	U	2	ug/g
	indeno(1,2,3-cd)pyrene	U	2	ug/g
	dibenzo(a,h)anthracene	U	2	ug/g
	benzo(g,h,i)perylene	U	2	ug/g
C9-C18 Alip	hatic Hydrocarbons (1)	2200	20	ug/g
C19-C36 Ali	phaticHydrocarbons (1)	2600	20	ug/g
C11-C22 Ar	omatic Hydrocarbons (1,2)	670	20	ug/g
Aliphatic Su	rrogate % Recovery	100		
Aromatic Su	rrogate % Recovery	83		
Sample Sur	rogate Acceptance Range	40-140%		
Fractionatio	n Surrogate % Recovery	78		

¹ Hydrocarbon Range data exclude concentrations of any surrogate(s) and/or internal standards eluting in that range.

50

40-140%

Fractionation Surrogate % Recovery

² C11-C22 Aromatic Hydrocarbons exclude the concentration of target PAH Analytes.

U = Below quantitation limit

Laboratory ID: 8919-02 RIM-MID (R) Cleint ID: 10/07/98 Date Collected: Date Received: 10/07/98 10/08/98 Date Extracted: 10/13/98 Date Analyzed: Solid Matrix: Satisfactory Containers: cold Sample Preservation:

Temperature: Received on Ice Extaction Method: SW-846-3550A

EPH ANALYTICAL RESULTS

Method for Ranges: MADEP EPH 98-1 Method for Target Analytes: EPA 8270C

EPA Surrogate Standards
Aliphatic: 1-chlorooctadecane
Aromatic: o-terphenyl
EPH Fractionation Surrogates

2-fluorobiphenyl 2-bromonaphthalene

Z Diomonapii				
Dilution Factor:		1		
RANGE/TAF	RGET ANALYTE .	Result	RL	Units
Unadjusted (C11-C22 Aromatics (1)	62	20	ug/g
	naphthalene	U	2	ug/g
Diesel PAH	2-methylnaphthalene	U	2	ug/g
Analytes	acenaphthylene	U	2	ug/g
	acenaphthene	U	2	ug/g
	fluorene	U	2	ug/g
	phenanthrene	4.9	2	ug/g
	anthracene	U	2	ug/g
	fluoranthene	5.1	2	ug/g
Other	pyrene	4.3	2	ug/g
Target PAH	benzo(a)anthracene	· U	2	ug/g
Analytes	chrysene	2.0	2	ug/g
	benzo(b)fluoranthene	U	2	ug/g
	benzo(k)fluoranthene	U	2	ug/g
	benzo(a)pyrene	U	2	ug/g
	indeno(1,2,3-cd)pyrene	U	2	ug/g
	dibenzo(a,h)anthracene	U	2	ug/g
	benzo(g,h,i)perylene	U	2	ug/g
C9-C18 Alip	hatic Hydrocarbons (1)	U	20	ug/g
C19-C36 Ali	phaticHydrocarbons (1)	U	20	ug/g
C11-C22 Ar	omatic Hydrocarbons (1,2)	45	20	ug/g
Aliphatic Su	rrogate % Recovery	100		
Aromatic Su	rrogate % Recovery	58		
Sample Sur	rogate Acceptance Range	40-140%		
Fractionatio	n Surrogate % Recovery	64		
Fractionatio	n Surrogate % Recovery	33		
	n Surrogate Acceptance Range	40-140%		

¹ Hydrocarbon Range data exclude concentrations of any surrogate(s) and/or internal standards eluting in that range.

² C11-C22 Aromatic Hydrocarbons exclude the concentration of target PAH Analytes.

U = Below quantitation limit

Laboratory ID: 8919-03 Cleint ID: RIM-MID (L) Date Collected: 10/07/98 10/07/98 Date Received: Date Extracted: 10/08/98 10/13/98 Date Analyzed: Solid Matrix: Containers: Satisfactory

Sample Preservation: cold

Temperature: Received on Ice Extaction Method: SW-846-3550A

EPH ANALYTICAL RESULTS

Method for Ranges: MADEP EPH 98-1 Method for Target Analytes: EPA 8270C

EPA Surrogate Standards
Aliphatic: 1-chlorooctadecane
Aromatic: o-terphenyl
EPH Fractionation Surrogates

2-fluorobiphenyl
2-bromonaphthalene

Dilution Factor:	1		
RANGE/TARGET ANALYTE	Result	RL	Units
Unadjusted C11-C22 Aromatics (1)	, U	20	ug/g
naphthalene	U	2	ug/g
Diesel PAH 2-methylnaphthalene	U '	2	ug/g
Analytes acenaphthylene	U	2	ug/g
acenaphthene	U	2	ug/g
fluorene	U	2	ug/g
phenanthrene	U	2	ug/g
anthracene	U	2	ug/g
fluoranthene	U	2	ug/g
Other pyrene	U	2	ug/g
Target PAH benzo(a)anthracene	U	2	ug/g
Analytes chrysene	U ·	2	ug/g
benzo(b)fluoranthene	U	2	ug/g
benzo(k)fluoranthene	U	2	ug/g
benzo(a)pyrene	U	2	ug/g
indeno(1,2,3-cd)pyrene	U	2	ug/g
dibenzo(a,h)anthracene	U	2	ug/g
benzo(g,h,i)perylene	U	2	ug/g
C9-C18 Aliphatic Hydrocarbons (1)	460	20	ug/g
C19-C36 AliphaticHydrocarbons (1)	390	20	ug/g
C11-C22 Aromatic Hydrocarbons (1,2)	υ	20	ug/g
Aliphatic Surrogate % Recovery	108		
Aromatic Surrogate % Recovery	83		
Sample Surrogate Acceptance Range	40-140%		

82

42

40-140%

Fractionation Surrogate % Recovery

Fractionation Surrogate % Recovery

¹ Hydrocarbon Range data exclude concentrations of any surrogate(s) and/or internal standards eluting in that range.

² C11-C22 Aromatic Hydrocarbons exclude the concentration of target PAH Analytes.

U = Below quantitation limit

8919-04 Laboratory ID: SED-MID Cleint ID: 10/07/98 Date Collected: 10/07/98 Date Received: 10/08/98 Date Extracted: 10/13/98 Date Analyzed: Solid Matrix: Satisfactory Containers:

Sample Preservation:

Temperature: Received on Ice Extaction Method: SW-846-3550A

EPH ANALYTICAL RESULTS

Method for Ranges: MADEP EPH 98-1 Method for Target Analytes: EPA 8270C

EPA Surrogate Standards
Aliphatic: 1-chlorooctadecane
Aromatic: o-terphenyl
EPH Fractionation Surrogates

2-fluorobiphenyl 2-bromonaphthalene

2-bromonapht	naiene				
Dilution Factor:			1		
RANGE/TAR	GET ANALYTE		Result	RL	Units
Unadjusted C	C11-C22 Aromatics (1)		U	20	ug/g
	naphthalene		U	2	ug/g
Diesel PAH	2-methylnaphthalene		U	2	ug/g
Analytes	acenaphthylene		U	2	ug/g
	acenaphthene		U	2	ug/g
	fluorene		ប	2	ug/g
	phenanthrene		U	2	ug/g
	anthracene		U	2	ug/g
	fluoranthene		U	2	ug/g
Other	pyrene		U	2	ug/g
Target PAH	benzo(a)anthracene		U	. 2	ug/g
Analytes	chrysene		U	2	ug/g
•	benzo(b)fluoranthene		υ	2	ug/g
	benzo(k)fluoranthene		U	2	ug/g
	benzo(a)pyrene	-	U	2	ug/g
	indeno(1,2,3-cd)pyrene		U	2	ug/g
	dibenzo(a,h)anthracene		U	2	ug/g
	benzo(g,h,i)perylene		U	2	ug/g
C9-C18 Alip	hatic Hydrocarbons (1)		340	20	ug/g
	phaticHydrocarbons (1)		450	20	ug/g
	omatic Hydrocarbons (1,2)		U	20	ug/g
	rrogate % Recovery		50		
•	rrogate % Recovery		42		
	rogate Acceptance Range		40-140%		
•	Surrogate % Recovery		64		
	n Surrogate % Recovery		83		

¹ Hydrocarbon Range data exclude concentrations of any surrogate(s) and/or internal standards eluting in that range.

40-140%

² C11-C22 Aromatic Hydrocarbons exclude the concentration of target PAH Analytes.

U = Below quantitation limit

Laboratory ID: 8919-05 Cleint ID: RIM-IN **Date Collected:** 10/07/98 Date Received: 10/07/98 Date Extracted: 10/08/98 Date Analyzed: 10/13/98. Matrix: Solid Containers: Satisfactory

Sample Preservation: cold

Temperature: Received on Ice **Extaction Method:** SW-846-3550A

EPH ANALYTICAL RESULTS

Method for Ranges: MADEP EPH 98-1 Method for Target Analytes: EPA 8270C

EPA Surrogate Standards Aliphatic: 1-chlorooctadecane Aromatic: o-terphenyl **EPH Fractionation Surrogates**

2-fluorobiphenyl 2-bromonaphthalene

Dilution Factor:		1		
RANGE/TAI	RGET ANALYTE	Result	RL	Units
Unadjusted	C11-C22 Aromatics (1)	20	20	ug/g
	naphthalene	U	2	ug/g
Diesel PAH	2-methylnaphthalene	U	2	ug/g
Analytes	acenaphthylene	U	2 '	ug/g
	acenaphthene	U	2	ug/g
	fluorene	U	2	ug/g
	phenanthrene	U	2	ug/g
	anthracene	U	2	ug/g
	fluoranthene	2.8	2	ug/g
Other	pyrene	2.1	2 ;	ug/g
Target PAH	benzo(a)anthracene	U	2	ug/g
Analytes	chrysene	U ·	2	ug/g
	benzo(b)fluoranthene	U	2 2	ug/g
	benzo(k)fluoranthene	U	2	ug/g
	benzo(a)pyrene	U	2	ug/g
	indeno(1,2,3-cd)pyrene	\$ U	2	ug/g
	dibenzo(a,h)anthracene	U	2	ug/g
	benzo(g,h,i)perylene	U	2	ug/g
	hatic Hydrocarbons (1)	400	20	ug/g
	phaticHydrocarbons (1)	380	20	ug/g
C11-C22 Ar	omatic Hydrocarbons (1,2)	15	20	ug/g
	rrogate % Recovery	88		
	rrogate % Recovery	58		
	rogate Acceptance Range	40-140%		
Fractionation	n Surrogate % Recovery	73		
Fractionation	n Surrogate % Recovery	75		
Fractionation	n Surrogate Acceptance Range	40-140%		

¹ Hydrocarbon Range data exclude concentrations of any surrogate(s) and/or internal standards eluting in that range.

² C11-C22 Aromatic Hydrocarbons exclude the concentration of target PAH Analytes.

U = Below quantitation limit

8919-06 Laboratory ID: SED-IN Cleint ID: 10/07/98 Date Collected: 10/07/98 Date Received: 10/08/98 Date Extracted: 10/13/98 Date Analyzed: Solid Matrix: Satisfactory Containers: cold Sample Preservation:

Temperature: Received on Ice
Extaction Method: SW-846-3550A

EPH ANALYTICAL RESULTS

Method for Ranges: MADEP EPH 98-1 Method for Target Analytes: EPA 8270C

EPA Surrogate Standards
Aliphatic: 1-chlorooctadecane
Aromatic: o-terphenyl
EPH Fractionation Surrogates
2-fluorobiphenyl

2-fluorobiphenyl 2-bromonaphthalene

2-bromonaph	thalene			
Dilution Factor:		1	·	
RANGE/TAP	RGET ANALYTE	Result	RL	Units
Unadjusted	C11-C22 Aromatics (1)	U	20	ug/g
	naphthalene	U	2	ug/g
Diesel PAH	2-methylnaphthalene	U	2	ug/g
Analytes	acenaphthylene	U	2	ug/g
	acenaphthene	U	2	ug/g
	fluorene	U	2	ug/g
	phenanthrene	U	2	ug/g
	anthracene	U	2	ug/g
	fluoranthene	U	2	ug/g
Other	pyrene	U	2	ug/g
Target PAH	benzo(a)anthracene	U	2	ug/g
Analytes	chrysene	U	2	ug/g
	benzo(b)fluoranthene	U	2	ug/g
	benzo(k)fluoranthene	U	2	ug/g
	benzo(a)pyrene	U	2	ug/g
	indeno(1,2,3-cd)pyrene	U	2	t ug/g
	dibenzo(a,h)anthracene	U	2	ug/g
	benzo(g,h,i)perylene	U	2	ug/g
	hatic Hydrocarbons (1)	40	20	ug/g
C19-C36 Al	iphaticHydrocarbons (1)	20	20	ug/g
C11-C22 A	romatic Hydrocarbons (1,2)	Ų	20	ug/g
Aliphatic Su	irrogate % Recovery	112		
Aromatic St	urrogate % Recovery	67		
Sample Sur	тоgate Acceptance Range	40-140%		
Fractionatio	n Surrogate % Recovery	73		
	on Surrogate % Recovery	83		
Fractionatio	on Surrogate Acceptance Range	40-140%		

¹ Hydrocarbon Range data exclude concentrations of any surrogate(s) and/or internal standards eluting in that range.

² C11-C22 Aromatic Hydrocarbons exclude the concentration of target PAH Analytes.

U = Below quantitation limit

Laboratory ID: 8919-07 Cleint ID: SW-OUT Date Collected: 10/07/98 Date Received: 10/07/98 Date Extracted: 10/14/98 Date Analyzed: 10/15/98 Matrix: Water Satisfactory Containers:

Sample Preservation: cold

Temperature: Received on Ice Extaction Method: SW-846-3510A

EPH ANALYTICAL RESULTS

Method for Ranges: MADEP EPH 98-1 Method for Target Analytes: EPA 8270C

EPA Surrogate Standards
Aliphatic: 1-chlorooctadecane
Aromatic: o-terphenyl
EPH Fractionation Surrogates
2-fluorobiphenyl

2-bromonaphthalene

Dilution Factor:		1		
RANGE/TAP	RGET ANALYTE	Result	RL	Units
Unadjusted	C11-C22 Aromatics (1)	U	20	ug/g
	naphthalene	U	2	ug/g
Diesel PAH	2-methylnaphthalene	U	2	ug/g
Analytes	acenaphthylene	U	2	ug/g
	acenaphthene	U	2	ug/g
	fluorene	U	2	ug/g
	phenanthrene	U	2	ug/g
	anthracene	U	2	ug/g
	fluoranthene	U	2	ug/g
Other	pyrene	U	2	ug/g
Target PAH	benzo(a)anthracene	U	2	ug/g
Analytes	chrysene	U .	2	ug/g
	benzo(b)fluoranthene	U	2	ug/g
	benzo(k)fluoranthene	U	2	ug/g
	benzo(a)pyrene	U	2	ug/g
	indeno(1,2,3-cd)pyrene	U	2	ug/g
	dibenzo(a,h)anthracene	U	· 2	ug/g
	benzo(g,h,i)perylene	U	2	ug/g
C9-C18 Alip	hatic Hydrocarbons (1)	U	20	ug/g
C19-C36 Ali	phaticHydrocarbons (1)	U	20	ug/g
C11-C22 An	omatic Hydrocarbons (1,2)	U	20	ug/g
Aliphatic Sur	rrogate % Recovery	96		
Aromatic Su	rrogate % Recovery	67		

40-140%

82

92

40-140%

Sample Surrogate Acceptance Range

Fractionation Surrogate % Recovery

Fractionation Surrogate % Recovery

¹ Hydrocarbon Range data exclude concentrations of any surrogate(s) and/or internal standards eluting in that range.

² C11-C22 Aromatic Hydrocarbons exclude the concentration of target PAH Analytes.

U = Below quantitation limit

8919-08 Laboratory ID: Cleint ID: SW-MID 10/07/98 Date Collected: 10/07/98 Date Received: 10/14/98 Date Extracted: 10/15/98 Date Analyzed: Water Matrix: Satisfactory Containers: cold

Sample Preservation:

Received on Ice Temperature: SW-846-3510A **Extaction Method:**

EPH ANALYTICAL RESULTS

Method for Ranges: MADEP EPH 98-1 Method for Target Analytes: EPA 8270C

EPA Surrogate Standards Aliphatic: 1-chlorooctadecane Aromatic: o-terphenyl **EPH Fractionation Surrogates**

2-fluorobiphenyl 2-bromonaphthalene

2-bromonapn	uraierie			
Dilution Factor:		1		
RANGE/TAP	RGET ANALYTE	Result	RL	Units
Unadjusted (C11-C22 Aromatics (1)	, U	20	ug/g
	naphthalene	U	2	ug/g
Diesel PAH	2-methylnaphthalene	U	2	ug/g
Analytes	acenaphthylene	U	2	ug/g
	acenaphthene	U	2	ug/g
	fluorene	U	2 2	ug/g
	phenanthrene	U	2	ug/g
	anthracene	U	2	ug/g
	fluoranthene	U	2	ug/g
Other	pyrene	U	2	ug/g
Target PAH	benzo(a)anthracene	U	2	ug/g
Analytes	chrysene	U	2	ug/g
	benzo(b)fluoranthene	U	2	ug/g
	benzo(k)fluoranthene	U	2	ug/g
	benzo(a)pyrene	- U	2	ug/g
	indeno(1,2,3-cd)pyrene	U ·	2	ug/g
	dibenzo(a,h)anthracene	U	2	ug/g
	benzo(g,h,i)perylene	U	. 2	ug/g
C9-C18 Alip	hatic Hydrocarbons (1)	U	20	ug/g
C19-C36 Al	iphaticHydrocarbons (1)	U	20	ug/g
C11-C22 Ar	romatic Hydrocarbons (1,2)	U	20	ug/g
Aliphatic Su	rrogate % Recovery	88		
	urrogate % Recovery	67		
	rogate Acceptance Range	40-140%		
	n Surrogate % Recovery	73		
	n Surrogate % Recovery	67		
	-			

¹ Hydrocarbon Range data exclude concentrations of any surrogate(s) and/or internal standards eluting in that range.

40-140%

² C11-C22 Aromatic Hydrocarbons exclude the concentration of target PAH Analytes.

U = Below quantitation limit

Laboratory ID: 8919-09 Cleint ID: SW-IN Date Collected: 10/07/98 Date Received: 10/07/98 Date Extracted: 10/14/98 Date Analyzed: 10/15/98 Matrix: Water Containers: Satisfactory Sample Preservation: cold

Temperature: Received on Ice Extaction Method: SW-846-3510A

EPH ANALYTICAL RESULTS

Method for Ranges: MADEP EPH 98-1 Method for Target Analytes: EPA 8270C

EPA Surrogate Standards
Aliphatic: 1-chlorooctadecane
Aromatic: o-terphenyl
EPH Fractionation Surrogates
2-fluorobiphenyl

2-bromonaphthalene

Dilution Factor:	1		
RANGE/TARGET ANALYTE	Result	RL	Units
Unadjusted C11-C22 Aromatics (1)	, U	20	ug/g
naphthalene	U	2	ug/g
Diesel PAH 2-methylnaphthalene	U	2	ug/g
Analytes acenaphthylene	U	2	ug/g
acenaphthene	U	2	ug/g
fluorene	U	2	ug/g
phenanthrene	U	2	ug/g
anthracene	U	2	ug/g
fluoranthene	U	2	ug/g
Other pyrene	U	2	ug/g
Target PAH benzo(a)anthracene	U	2	ug/g
Analytes chrysene	U -	2	ug/g
benzo(b)fluoranthene	U	2	ug/g
benzo(k)fluoranthene	U	2	ug/g
benzo(a)pyrene	U	2	ug/g
indeno(1,2,3-cd)pyrene	U	2	ug/g
dibenzo(a,h)anthracene	U	2	ug/g
benzo(g,h,i)perylene	· U	2	ug/g
C9-C18 Aliphatic Hydrocarbons (1)	U	20	ug/g
C19-C36 AliphaticHydrocarbons (1)	U	20	ug/g
C11-C22 Aromatic Hydrocarbons (1,2)	U	20	ug/g
Aliphatic Surrogate % Recovery	69		
Aromatic Surrogate % Recovery	42		

40-140%

55

33

40-140%

Sample Surrogate Acceptance Range

Fractionation Surrogate % Recovery

Fractionation Surrogate % Recovery

¹ Hydrocarbon Range data exclude concentrations of any surrogate(s) and/or internal standards eluting in that range.

² C11-C22 Aromatic Hydrocarbons exclude the concentration of target PAH Analytes.

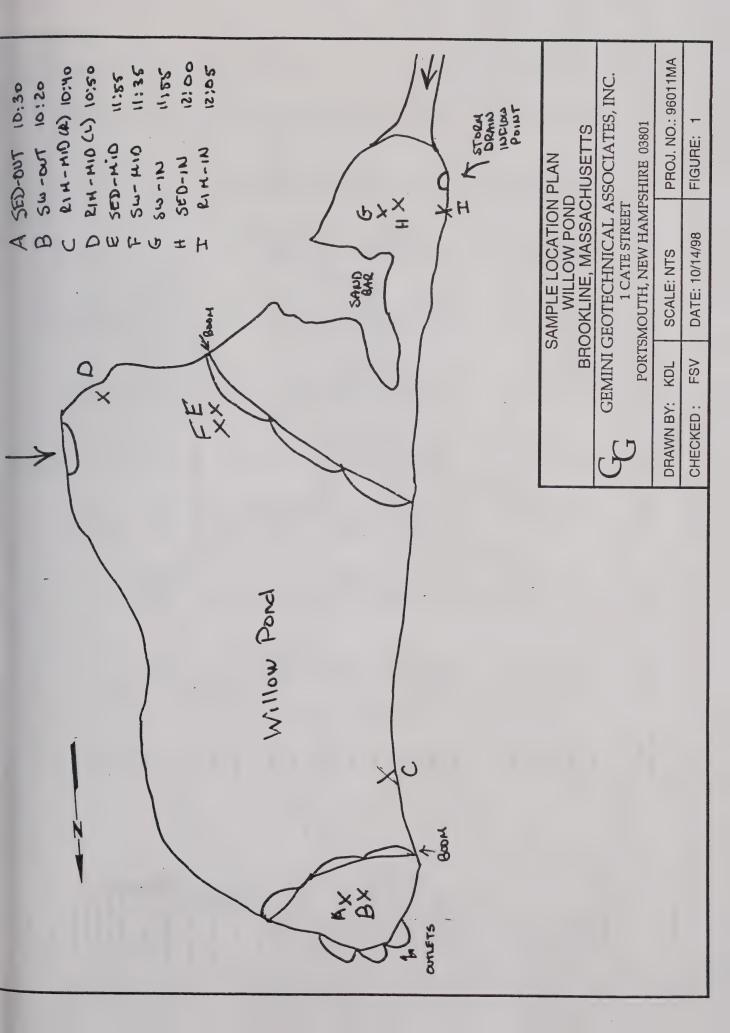
U = Below quantitation limit

124 Heritage Avenue
Portsmouth, NH 03801

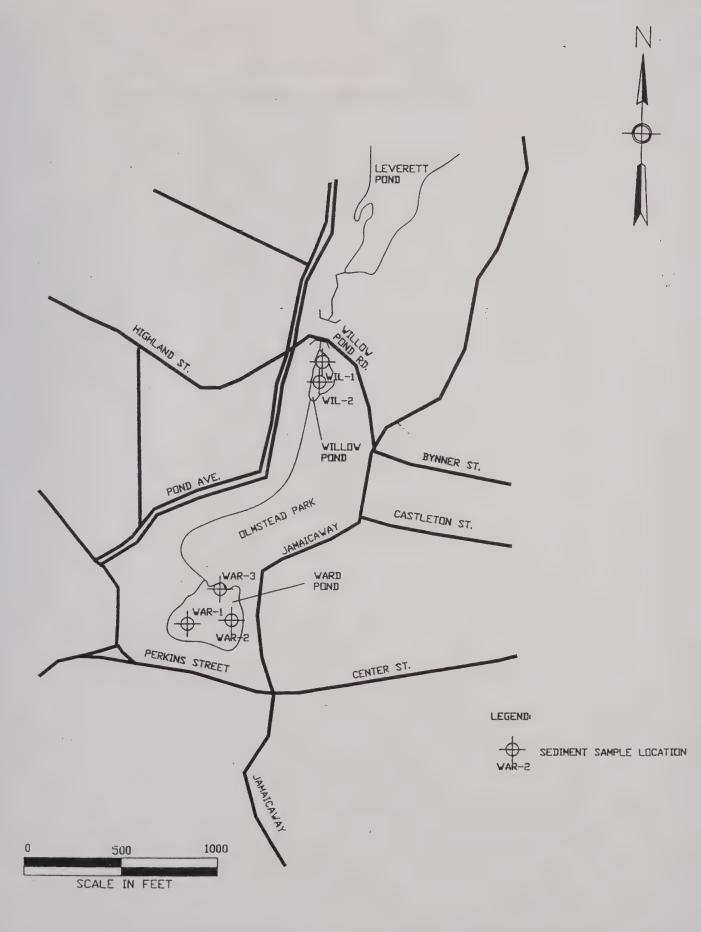
CHAIN OF CUSTODY DOCUMENTATION

FAX: 603-430-2100 Voice: 603-436-2001

								110111		
client: Grini Gesterbaice	Contact:	K. Leavitt	410			Project Name:	mdQ :	2	PAGE OF	
Report To: Kurch Leavith	Address:	1 (ak St.,		Portsmo	Portsmooth BH	H 03801			Phone/FAX: (605) 4137-01411	7
Invoice To: L. Saltamartine	Address:								+	
PROTOCAL: RCRA SDWA	A	NPDES	7	L OTHER: M	14 MCP					
Lab Number: Your Field ID: (assigned by (must agree with container) laboratory)	Sampled	Time Sampled	Sampled By	Grab/ compos- ite(G/C)	Container Size (mL)	Container Type (P/G/T)	Field Preser- vation	Matrix S=Soli W=Water	Analyses Requested: Special Instructions:	
8919-01 SED-00T	10-7-98 10:30 KDL	10:30	KDL	ರ	202	B		S	EDH	
-03 RIM-MID(R)		10:40								
-03 RIM-MID (L)		10:50								
-04 SED-MID		11:55								
-05 RIM - IN		12:00								
-06 SED - IN		12:00			\rightarrow			->		
-07 SW-OUT		10:20			77		HC &	3		
-08 SW-MID		11:35						_		
-09 SW- IN	>	11:55	->	->	->	->	->	->	->	
						and the company of the party of the company of the				
Relinquished By: Lahar Learne	*	Date:	ong Time:	le:		Received By	1 A	0	1. Date: 11/7/98 Ti	Time
Relinquished By:		Date:	Time:			Received By:	D			Time:
Relinquished By:		Date:	Time:	ne:		Received By:			Date: Tin	Time:



INORGANICS (mg/kg) Arsenic										
ORGANICS (mg/kg) Arsenic	Willow 00-1 (0 - 0.5')	Willow 00-1 (0.5-3.54°)	Willow 00-2 (0 - 0.5')	Willow 00-2 (0.5 - 4.557)	Wards 00-1 (0 - 0.5')	Wards 00-1 (0.5 - 2.3')	Wards 00-2 (0 - 0.6")	Wards 00-2 (0.6 - 2.0')	Wards 00-3 (0 - 0.6')	Wards 00-3 (0.6 - 2.58°)
Jr.Ganica (ingreg) Arsenic										
Nacine National Property of the Property of th	16.1	24.5	13.5	25.8	30.3	13.7	30.1	20.5	15.7	28.5
Cadminm	3.18	2.29	1.55	2.43	1.15	0.3	1.35	0.29	2.31	0.74
Chromium	86.6	0.09	60.2	8.69	34.1	26.0	37.5	24.0	31.6	33.9
Copper	236	158	126	178	62.3	28	74.6	42.5	6.99	20.1
Dea -	573	602	522	909	307	63	491	198	529	8/7
TO SECOND	40.4	34.9	26.8	36.0	23.3	14.7	26.3	13.0	32.7	4.6
Mercury	0.78	99.0	0.43	1.18	0.54	0.19	0.86	0.44	0.5	0.00
Zinc	483	359	304	426	225	63	385	133	310	667
TCLP Lead (mg/l)	0.1	1	0.1	0.5	0.1	n.d.	0.3	n.d.	0.2	0.1
PAHs (ug/kg)					!		970	4	1,1	S
Acenaphthene	894	1232	296	3608	43	n.d.	210	e É	, to	20.5
Acenaphthylene	353	265	170	1685	177	n.d.	1103	4//	121	763
Anthracene	1836	3567	1315	0996	343	26	2433	2400	744	1556
Benzo(a)anthracene	4825	8294	3731	23519	1358	144	0/00	3109	000	1978
Benzo(a) pyrene	5395	8225	4053	23353	1653	158	9630	3118	1000	2162
Benzo (b)fluroanthene	6129	7679	4436	22362	1/53	//1	6245	2700	035	2203
Benzo(k)fluroanthene	5454	7511	3816	20529	15/9	2/0	0.045	2153	843	1826
Berzo (g,h,i)perylene	4601	5871	3179	16325	1406	751	2847	4504	1050	2480
Chrysene	7117	10151	5030	28425	1798	SQ2	1104	478	284	429
Dibenz(a,h)anthracene	382	1365	752	3260	320	£2 5	11000	7007	1595	3199
Fluoranthene	13129	20652	9764	62154	2610	302	1909	245	98	127
Fluorene	1559	1900	148	5395	39	1.0.	5550	2283	857	1956
Indeno(1,2,3-cd)pyrene	4822	6407	3300	1670	7402	? 5	181	75	48	53
2-methylnapthalene	3417	1075	962	28/87	4 8	n. 6.	707	5 5	74	103
Napthalene	364	492	293	1000	35	11.0.	1530	1687	285	591
Perylene	1433	2166	1063	3233	986	111	3873	2869	689	1113
Phenanthrene	9360	14233	2000	SERDO 2	2715	363	12278	7256	1500	3230
Pyrene	11652	1881	8487	77600	2 2	3				
Total PAHs (ug/kg)	83325	120390	58651	349391	18830	6166	79020	42181	11140	23907
TPH (mg/kg)	49590	53260	57010	33880	2868	3359	4626	4049	2410	2902
	240	342	77	287	23	2	47	n.d.	40	7
PCBs (ug/kg)	2	!								
PESTICIDES (ug/kg)		į	6	070	9	7	33	ç	27	9
000	21.5	83.	582	910	90	. i.c.	1 %	n.d.	83	4.8
DDE	269	80 9	124	7 5	07	i d	3 5	n.d	2	n.d.
DOT	44	æ :	760	97 2	j. c.	. T. C.	5 5	0	n.d	n.d.
Gamma Chlordane	99	27	92	7 8	n.o.	j. i.	j 7	2	0	0.0
Apha Chlordane	53	GC 1	28	3 3	n.d.	n.d.	. T	9	pu	0.0
Endosulfan I	17	25	12	4,7	n.a.	n.a.	j 7	0	0.0	n.d.
Methoxychlor	S	27	æ, ,	3 5		n.a.	9	D.C	n.d	n.d.
Heptachlor	c,	n.d	4	n.O.	n.d.	i.d.	į			
100 (%)	15.1	10.3	13.3	11.2	7.8	21.6	8.7	20.2	10.7	6.4
(*)							6	00	7.8	83
Silt & Clay (%)	93	83	06	93	86	82	66	n n	0	70





SEDIMENT SAMPLE LOCATIONS WARD POND AND WILLOW POND OLMSTEAD PARK

BROOKLINE, MA

DATE

REVISED

FIGUR



ATTACHMENT F-4

CDM'S FIELD INVESTIGATION PROGRAM SUMMARY ANALYTICAL TABLES



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Station BBF-PF-01	1a	1	/ ~	\ X	18	1 %	/ ~	/ ~	Area	Lab	Laboratory	10	18	14	120	12	10	10	15	/ ~	120	150	
BBF-PF-02	-	-	-	-	-	-	-		Back Bay Fens Back Bay Fens	07/19/00	AMRO AMRO	+	-	-		-	-	-	-		-	_ ^_	
BBF-PF-03					_				Back Bay Fens	07/25/00	AMRO	+	-	-	-	-		-	┼─	-	-	X	
BBF-PF-04									Back Bay Fens	07/28/00	AMRO	-				-	-	-	+	-	-	X	
BBF-PF-05									Back Bay Fens	08/01/00	AMRO					1						X	
BBF-PF-06	-	↓	-	<u> </u>	-	 			Back Bay Fens	09/06/00	AMRO											Х	
BBF-PF-07	-	-	-	-	-	-			Back Bay Fens	09/07/00	AMRO	-	<u> </u>	-								X	
BBF-PF-10 BBF-SED-01	X	-		-		-			Back Bay Fens	08/14/00	AMRO	1		-		-	-	-	-	ļ	-	X	
BBF-SED-02	X								Back Bay Fens Back Bay Fens	10/19/00 07/19/00	AMRO AMRO	X	X	X	X	X	X	X	X		-		
BBF-SED-02					X				Back Bay Fens	07/19/00	AMRO	X	X	X	X	X	X	X	X	-	-		
BBF-SED-02						X			Back Bay Fens	07/19/00	AMRO	X	X	X	X	X	X	X	X		-		
BBF-SED-03	X								Back Bay Fens	07/19/00	AMRO	X	Х	X	X	Х	Х	Х	Х				
BBF-SED-03	7/	-	X	-					Back Bay Fens	07/19/00	AMRO	X	X	X	X	X	X	X	X				
BBF-SED-04 BBF-SED-04	X		X						Back Bay Fens	07/20/00	AMRO	X	X	X	X	X	X	X					
BBF-SED-04					X				Back Bay Fens Back Bay Fens	07/20/00	AMRO AMRO	X	X	X	X	X	X	X	X		-		
BBF-SED-05	X								Back Bay Fens	07/21/00	AMRO	X	X	X	X	X	X	X	X		-		
BBF-SED-05			X						Back Bay Fens	07/21/00	AMRO	X	X	X	X	X	X	X	Х	-			
BBF-SED-05						X			Back Bay Fens	07/21/00	AMRO	X	X	Х	X	Х	X	Х	X				
BBF-SED-06	X								Back Bay Fens	07/25/00	AMRO	X	X										
BBF-SED-06 BBF-SED-06				X	X				Back Bay Fens	07/25/00	AMRO	X	X	X	X	X	X	X	X				
BBF-SED-07	X				^			-	Back Bay Fens Back Bay Fens	07/25/00	AMRO AMRO	X	X	X	X	X	X	X	X	37	¥.		
BBF-SED-07			Х						Back Bay Fens	09/07/00	AMRO	X	X	X	X	X	X	X	X	X	X		
BBF-SED-07					X				Back Bay Fens	09/07/00	AMRO	X	X	X	X	X	X	X	X	X	X	-	
BBF-SED-08	X								Back Bay Fens	09/06/00	AMRO	X	Х	Х	X	X	X	X		X	X		
BBF-SED-08	37		X						Back Bay Fens	09/06/00	AMRO	X	X										
BBF-SED-09 BBF-SED-09	X		X					-	Back Bay Fens	09/06/00	AMRO	X	X	X	X	X	X	X	X	X	Х		
BBF-SED-10	Х		Λ.						Back Bay Fens Back Bay Fens	09/06/00	AMRO AMRO	X	X	X	X	X	X	X	X	X	X		
BBF-SED-10			Х						Back Bay Fens	09/06/00	AMRO	X	X	X	X	X	X	X	X	X	X	\dashv	
BBF-SED-11	X								Back Bay Fens	07/26/00	AMRO	X	X			-/-	1	1			Ĥ		
BBF-SED-11				X					Back Bay Fens	07/26/00	AMRO	X	X	X	X	X	Х	Х	X				
BBF-SED-11	V					X			Back Bay Fens	07/26/00	AMRO	X	X	X	X	X	Х	Х	X				
BBF-SED-12 BBF-SED-12	X		X						Back Bay Fens	09/06/00	AMRO	X	X	X	X	X	X	X	X				
BBF-SED-12			Λ		X				Back Bay Fens Back Bay Fens	09/06/00	AMRO AMRO	X	X	X	X	X	X	X	X			\dashv	
BBF-SED-13	X								Back Bay Fens	09/06/00	AMRO	X	X	X	X	X	X	$\frac{\wedge}{X}$	X			-	
BBF-SED-13			X						Back Bay Fens	09/06/00	AMRO	X	X	X	X	X	X	X	X				
BBF-SED-13				X					Back Bay Fens	09/06/00	AMRO	X	X	X	X	X	X	X	X				
BBF-SED-14 BBF-SED-14	X		X					-	Back Bay Fens	09/06/00	AMRO	X	X	X	X	X	X	X	X				
BBF-SED-14	X		^				-		Back Bay Fens Back Bay Fens	09/06/00	AMRO AMRO	X	X	X	X	X	X	X	Х				
BBF-SED-15				Х				-	Back Bay Fens	07/26/00	AMRO	X		X	Х	X	Х	Y	Y				
BBF-SED-15					X				Back Bay Fens	07/26/00	AMRO	X	X	X	X	X	X	X	X			\dashv	
BBF-SED-16	X								Back Bay Fens	09/06/00	AMRO	X	X	X	X	X	X	X	X				
BBF-SED-16			Х	37					Back Bay Fens	09/06/00	AMRO	X	X	X	X	Х	X	X					
BBF-SED-16 BBF-SED-17	X			X					Back Bay Fens	09/06/00	AMRO	X	X	X	X	X	X	X	7.0				
BBF-SED-17			X						Back Bay Fens Back Bay Fens	07/26/00	AMRO AMRO	X	X	X	X	X	X	X	X				
BBF-SED-17					Х				Back Bay Fens	07/26/00	AMRO	X	X	X	X	X	X	X	X				
BBF-SED-18									Back Bay Fens	07/27/00	AMRO	X	X	X	X	X	X	X	X				
BBF-SED-18									Back Bay Fens	07/27/00	AMRO	X	X	Х	X	X	X	X	X				
BBF-SED-19	V								Back Bay Fens	07/27/00	AMRO	X	X	X	X	X	X	X	X				
BBF-SED-19	X			Х				+	Back Bay Fens Back Bay Fens	08/15/00 08/15/00	AMRO	X	X	X	X	X	X	X		X	X		
BBF-SED-19						X			Back Bay Fens	08/15/00	AMRO AMRO	X	X	X	X	X	Х	Х		X	X	-	
BBF-SED-20	X								Back Bay Fens	08/14/00	AMRO	X	X	X	Х	X	X	X	Х				
BBF-SED-20				Х					Back Bay Fens	08/14/00	AMRO	X	X	X	X	X	X	X	X				
BBF-SED-21	X								Back Bay Fens	08/14/00	AMRO	X	X	X	X	X	X	Х					
BBF-SED-21DUP BBF-SED-21A	X		v						Back Bay Fens	08/14/00	AMRO	X	X	X	X	X	X	X					
BBF-SED-21A			X		Х				Back Bay Fens Back Bay Fens	08/14/00	AMRO AMRO	X	X	X	v	v	v	v	v				
BBF-SED-22	X				71				Back Bay Fens	08/14/00	AMRO	X	X	X	X	X	X	X	X				
BBF-SED-22			X						Back Bay Fens	08/14/00	AMRO	X	X	X	X	X	X	X	X				
BBF-SED-23	X								Back Bay Fens	08/15/00	AMRO	X	X	X	X	X	X	X		Х	X		
BBF-SED-23			X					- [Back Bay Fens	08/15/00	AMRO	X	X	Χ	X	X	X	Χ		X	X		
BBF-SED-23						1		X	Back Bay Fens	08/15/00	AMRO	X	X	X	X	X	X	X		X	X		

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Station	\a	/ < /	/ ~	\ \ \	/ W	/ %	/ 3	12	/ Area	Lab	Laboratory		12	14	120	12	/0	/ 0	15	/ 2	12	1 20
BBF-SED-24	Х			7.			-		Back Bay Fens	08/11/00	AMRO	X	X	X	X	X	X	X	X			
BBF-SED-24				X	X				Back Bay Fens Back Bay Fens	08/11/00	AMRO AMRO	X	X	X	X	X	X	X				
BBF-SED-24 BBF-SED-24DUP					X		-		Back Bay Fens	08/11/00	AMRO	X	X	X	X	X	X	X				
BBF-SED-25	Х								Back Bay Fens	08/11/00	AMRO	X	Х	X	X	X	X	Х	Х			
BBF-SED-25			X						Back Bay Fens	08/11/00	AMRO	X	X	X	X	X	X	X	X			
BBF-SED-25					X				Back Bay Fens	08/11/00	AMRO	X	X	X	X	X	X	X	X			_
BBF-SED-26	X			v			-		Back Bay Fens	08/11/00	AMRO AMRO	X	X	X	X	X	X	X	X			
BBF-SED-26 BBF-SED-26				X			-	X	Back Bay Fens Back Bay Fens	08/11/00	AMRO	X	X	X	X	X	X	X				
BBF-SED-27	Х								Back Bay Fens	08/11/00	AMRO	X	X	X	X	X	X	X	X	X	Х	
BBF-SED-27				Х					Back Bay Fens	08/11/00	AMRO	X	X	X	X	X	X	X	X	Х	X	
BBF-SED-27					X				Back Bay Fens	08/11/00	AMRO	X	X	X	X	X	X	X	X	X	X	
BBF-SED-28	X								Back Bay Fens	08/09/00	AMRO	X	X	X	X	X	X	X	16			
BBF-SED-28			X				X		Back Bay Fens	08/09/00	AMRO AMRO	X	X	X	X	X	X	X	X			
BBF-SED-28 BBF-SED-29	X						<u> </u>		Back Bay Fens Back Bay Fens	08/09/00	AMRO	X	X	X	X	X	X	X	<u> </u>			
BBF-SED-29	^			X					Back Bay Fens	08/09/00	AMRO	X	X	X	X	X	X	X				
BBF-SED-29					Х				Back Bay Fens	08/09/00	AMRO	X	Х	X	Х	X	X	X	X			
BBF-SED-30	X								Back Bay Fens	07/27/00	AMRO	X	X	X	X	Χ	X	X	X			
BBF-SED-30			X						Back Bay Fens	07/27/00	AMRO	X	X	X	X	X	X	X	X			
BBF-SED-31	X			v			-		Back Bay Fens Back Bay Fens	07/28/00	AMRO AMRO	X	X	X	X	X	X	X	X		-	
BBF-SED-31 BBF-SED-31				X			X		Back Bay Fens	07/28/00	AMRO	X	X	X	X	X	X	X	X			
BBF-SED-32	Х								Back Bay Fens	08/09/00	AMRO	X	X	X	X	X	X	X				
BBF-SED-32				Х					Back Bay Fens	08/09/00	AMRO	X	X	X	X	Х	X	X	Х			
BBF-SED-32						X			Back Bay Fens	08/09/00	AMRO	X	X	X	X	X	X	X				
BBF-SED-33	X								Back Bay Fens	07/27/00	AMRO	X	X	X	X	X	X	X	X			
BBF-SED-33			X		7,	-	-		Back Bay Fens	07/27/00	AMRO	X	X	X	X	X	X	X	X			
BBF-SED-33 BBF-SED-34	X				X		-		Back Bay Fens Back Bay Fens	07/27/00	AMRO AMRO	X	X	X	X	X	X	X	X	-		
BBF-SED-34	A			X		-			Back Bay Fens	08/07/00	AMRO	X	X	X	X	X	X	X	X			
BBF-SED-34					X				Back Bay Fens	08/07/00	AMRO	X	X	X	X	X	Х	X	Х			
BBF-SED-35	X								Back Bay Fens	08/07/00	AMRO	X	X	X	X	X	X	X	X			
BBF-SED-35				X				-	Back Bay Fens	08/07/00	AMRO	X	X	X	X	X	X	X	X			
BBF-SED-35	3/				-	X	-		Back Bay Fens	08/07/00	AMRO	X	X	X	X	X	X	X	X			
BBF-SED-36 BBF-SED-36	X			X		-	-		Back Bay Fens Back Bay Fens	08/07/00	AMRO AMRO	X	X	X	X	X	X	X	X	-		
BBF-SED-36				7.	X		1		Back Bay Fens	08/07/00	AMRO	X	X	X	X	X	X	X	X			
BBF-SED-37	Х								Back Bay Fens	08/07/00	AMRO	X	Х	Х	X	Х	X	Х	X			
BBF-SED-37			X						Back Bay Fens	07/28/00	AMRO	X	X	X	X	X	X	X	X			
BBF-SED-37					X	-	-		Back Bay Fens	07/28/00	AMRO	X	X	X	X	X	X	X	X	-		
BBF-SED-38	X			-	V		-	-	Back Bay Fens	08/07/00	AMRO	X	X	X	X	X	X	X	X			-
BBF-SED-38 BBF-SED-39	X				X	-	-	-	Back Bay Fens Back Bay Fens	08/08/00	AMRO AMRO	X	X	X	X	X	X	X	X	-		
BBF-SED-39	A			X	_		 		Back Bay Fens	08/09/00	AMRO	X	X	X	X	X	X	X	X			
BBF-SED-39					X				Back Bay Fens	08/10/00	AMRO	X	X	X	X	X	X	X	X			
BBF-SED-40	X								Back Bay Fens	07/31/00	AMRO	X	X	X	X	X	X	Х	X			
BBF-SED-40	-		X		-		-		Back Bay Fens	07/31/00	AMRO	X	X	X	X	X	X	X	X	-		
BBF-SED-40	v				X	-	-		Back Bay Fens	07/31/00	AMRO	X	X	X	X	X	X	X	X	-		
BBF-SED-41	X			X		-	-		Back Bay Fens Back Bay Fens	08/04/00	AMRO AMRO	X	X	X	X	X	X	X	^	1		
BBF-SED-41				^	X		1		Back Bay Fens	08/04/00	AMRO	X	X	X	X	X	X	X	X			
BBF-SED-42	X								Back Bay Fens	07/31/00	AMRO	X	X	X	X	X	X	X				
BBF-SED-42			X						Back Bay Fens	07/31/00	AMRO	X	X	X	X	X	X	X	X	-		
BBF-SED-42				X		-		-	Back Bay Fens	07/31/00	AMRO	X	X	X	X	X	X	X	X	-		
BBF-SED-43	X			17	-	-	-	-	Back Bay Fens	08/01/00	AMRO	X	X	X	X	X	X	X	X	-		
BBF-SED-43 BBF-SED-43				X	X	-	-	-	Back Bay Fens Back Bay Fens	08/01/00	AMRO AMRO	X	X	X	X	X	X	X	X	-	-	
BBF-SED-43	X				1	-	+		Back Bay Fens	08/04/00	AMRO	X	X	X	X	X	X	X	X			
BBF-SED-44	1			X					Back Bay Fens	08/04/00	AMRO	X	X	X	X	X	X	X	X			
BBF-SED-44					X				Back Bay Fens	08/04/00	AMRO	X	X	X	X	X	X	X	X			
BBF-SED-45	X								Back Bay Fens	08/01/00	AMRO	X	X	X			X	X	X	-		
BBF-SED-45				X	-		-	-	Back Bay Fens	08/01/00	AMRO	X	X	X	X	X	X	X	X		-	
BBF-SED-45	V			-	X	-	-		Back Bay Fens	08/01/00	AMRO	X	X	X	X	X	X	X	X	-	1-	
BBF-SED-46 BBF-SED-46	X			X	-	-	-	-	Back Bay Fens Back Bay Fens	08/03/00	AMRO AMRO	X	X	X			X	X	X	-		
DDI -3LD-40	-	-		1		+	+	-		+										+	1	
BBF-SED-46	1				X				Back Bay Fens	08/03/00	AMRO	X	X	X	X	X	X	X	X			

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BBF-SED-47				X					Back Bay Fens	08/03/00	AMRO	X	X	X	X	X	X	X	X	1	1		ſ
BBF-SED-47					X				Back Bay Fens	08/03/00	AMRO	X	X	X	X	X	X	X	X				
BBF-SED-48	X				-	-			Back Bay Fens	08/01/00	AMRO	X	X	X	X	X	X	X	X				
BBF-SED-48	-		-	X			-	-	Back Bay Fens	08/01/00	AMRO	X	X	X	X	X	X	X	X				ł
BBF-SED-48	1 31	-			X	-	-	-	Back Bay Fens	08/01/00	AMRO	X	X	X	X	X	X	X	X				
BBF-SED-49	X	-	-	1 7/	-		-	-	Back Bay Fens	08/02/00	AMRO	X	X	X	X	X	X	X	X	<u> </u>			
BBF-SED-49	-	-	-	X	X	-	-		Back Bay Fens	08/02/00	AMRO	X	X	X	X	X	X	X	X	-	-	\sqcup	
BBF-SED-50	X				1-2	-	-	-	Back Bay Fens Back Bay Fens	08/02/00	AMRO	X	X	X	X	X	X	X	X	-	-	-	
BBF-SED-50	1	-		X	-				Back Bay Fens	08/02/00	AMRO AMRO	X	X	X	X	X	X	X	X	-	-	-	
BBF-SED-50					X				Back Bay Fens	08/02/00	AMRO	X	X	X	X	X	X	X	X	-	┼	-	
BBF-SED-51	X								Back Bay Fens	08/02/00	AMRO	X	X	X	X	X	X	X	X	-	+		
BBF-SED-51			X						Back Bay Fens	08/02/00	AMRO	X	X	X	X	X	X	X	X		-		
BBF-SED-51				X					Back Bay Fens	08/02/00	AMRO	X	X	X	X	X	X	X	X		1		
BBF-SED-52	X	<u> </u>							Back Bay Fens	08/03/00	AMRO	X	X	Х	X	X	X	X	X				
BBF-SED-52	-	ļ		X					Back Bay Fens	08/03/00	AMRO	X	X	X	X	X	X	X	X				
BBF-SED-52	77	-	-		X				Back Bay Fens	08/03/00	AMRO	X	X	X	X	X	X	X	X				
BBF-SED-53 BBF-SED-53	X	-	-	v	-				Back Bay Fens	08/03/00	AMRO	X	X	X	X	X	X	X	X				
BBF-SED-53	-			X	X				Back Bay Fens	08/03/00	AMRO	X	X	X	X	X	X	X	X		-		
BBF-SED-54	X								Back Bay Fens Back Bay Fens	08/03/00	AMRO	X	X	X	X	X	X	X	X		-		
BBF-SED-54	1		-		X				Back Bay Fens	08/02/00	AMRO AMRO	X	X	X	X	X	X	X	X		-		
BBF-SED-54						X			Back Bay Fens	08/02/00	AMRO	X	X	X	X	X	X	X	X			-	
BBF-SED-55	X								Back Bay Fens	08/02/00	AMRO	X	X	X	X	X	X	X	X		-		
BBF-SED-55					X				Back Bay Fens	08/02/00	AMRO	X	X	X	X	X	X	X	X		-		
BBF-SED-55						X			Back Bay Fens	08/02/00	AMRO	X	Х	Х	X	X	X	X	X				
BBF-SED-56	X								Back Bay Fens	08/02/00	AMRO	X	X	Х	X	X	X	Х	X				
BBF-SED-56			X				_		Back Bay Fens	08/02/00	AMRO	X	X	X	X	X	X	X	X				
BBF-SED-57	X			37					Back Bay Fens	08/02/00	AMRO	X	X	X	X	X	X	X	X				
BBF-SED-57 BBF-SED-57				X		X			Back Bay Fens	08/02/00	AMRO	X	X	X	Х	X	X	X	X				
BBF-SED-58	X					^			Back Bay Fens Back Bay Fens	08/02/00	AMRO	X	X	X	X	X	X	X	X				
BBF-SED-58	A		X						Back Bay Fens	08/01/00	AMRO AMRO	X	X	X	X	X	X	X	X				
BBF-SED-58					X				Back Bay Fens	08/01/00	AMRO	X	X	X	X	X	X	X	Α.				
BBF-SED-58							X		Back Bay Fens	08/01/00	AMRO	X	X	X	X	X	X	X	Х		-		
BBF-SED-58DUP							X		Back Bay Fens	08/01/00	AMRO	X	X	X	X	X	X	X	^				
BBF-SED-59	X								Back Bay Fens	08/01/00	AMRO	X	X	Х	X	X	X	X					
BBF-SED-59				X					Back Bay Fens	08/01/00	AMRO	X	X	X	X	X	X	X	Х				
BBF-SED-59						X			Back Bay Fens	08/01/00	AMRO	X	X	X	X	X	X	X	X				
BBF-SED-60	X		v		_				Back Bay Fens	08/01/00	AMRO	X	X	X	X	X	X	X					
BBF-SED-60 BBF-SED-60			X		-	X			Back Bay Fens	08/01/00	AMRO	X	X	X	X	X	X	X	X				
CG-SED-1		X							Back Bay Fens Charles Gate	08/01/00	AMRO	X	X	X	X	X	X	X	X				
CG-SED-1		A	Х						Charles Gate	07/25/00	AMRO AMRO	X	X										
CG-SED-1				X					Charles Gate	07/25/00	AMRO	X		Х	X	X	x	Х	X				
CG-SED-2	Х								Charles Gate	07/25/00	AMRO	X	X	X	X	X	X	X					
CG-SED-2			X						Charles Gate	07/25/00	AMRO	X	X	X	X	X	X	X	Х				
CG-SED-2					X				Charles Gate	07/25/00	AMRO	X	X	X	X	X	X	Х	X				
CG-SED-3	X								Charles Gate	07/27/00	AMRO	X	X										
CG-SED-3				X	_			-	Charles Gate	07/27/00	AMRO	X	X	X	X	X	X	X					
CG-SED-3	X					X			Charles Gate	07/27/00	AMRO	X	X	X	X	X	X	X	X				
CG-SED-4	^		Х						Charles Gate Charles Gate	07/28/00	AMRO	X	X	v	V	v	v	v					
CG-SED-4			-74			Х			Charles Gate Charles Gate	07/28/00	AMRO AMRO	X	X	X	X	X	X	X	X				
CG-SED-5	X								Charles Gate	07/28/00	AMRO	X	X	X	X	X	X	X	X				
CG-SED-5			Х						Charles Gate	07/28/00	AMRO	X	X	X	X	X	X	X	X				
CG-SED-6	X								Charles Gate	07/28/00	AMRO	X	X	X	X	X	X	X	X				
CG-SED-6				X					Charles Gate	07/28/00	AMRO	Х	X	X	X	X	X	X					
CG-SED-6					X				Charles Gate	07/28/00	AMRO	X	X	X	X	X	X	Χ	X				
LP-PF-02	3/								Leverett Pond	08/18/00	AMRO	X											
LP-SED-01 LP-SED-01	X			V					Leverett Pond	08/17/00	AMRO	X	X	X	X	X	X	X		X	X	_	
LP-SED-01				X	X				Leverett Pond	08/17/00	AMRO	X	X	X	X	X	X	X	V	X	X		
LP-SED-02	X				^				Leverett Pond Leverett Pond	08/17/00	AMRO AMRO	X	X	X	X	X	X	X	X	X	X	-	
LP-SED-02	-/>		Х						Leverett Pond	08/17/00	AMRO	X	X										
LP-SED-03	Х								Leverett Pond	08/18/00	AMRO	X	X										
LP-SED-03			X						Leverett Pond	08/18/00	AMRO	X	X	X	X	Х	X	Х	X	X	X		
LP-SED-04	Х								Leverett Pond	08/17/00	AMRO	X	X										
LP-SED-04			X						Leverett Pond	08/17/00	AMRO	X	X										

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	/	//.	/ . /	_/	_/	_ /	×/.		<u> </u>	Date		/	E	8 Metal	7/	\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \	\ \tag{\frac{1}{2}}	Dia.	Sieve	N. No Hydron	100 / 100 /	Paine Phosphale
Station	a 2 c	\$ \\ \tilde{\chi}{\chi}	2 4 2 4 2 4	40,6		8, 10°	\$ \\ \frac{\partial}{2}	12/2	Area	Submitted to Lab	Laboratory	The state of the s		5/2°	5 / S	Real Control	Tilling & Sold of the Control of the			1 × ×	100	Pain
Station LP-SED-05	X			, ,	-	7-0			Leverett Pond	08/18/00	AMRO	X	X	X	X	X	X	X	X	X	X	
LP-SED-05			X						Leverett Pond	08/18/00	AMRO	X	X	Х	X	X	X	X	X	X	X	
LP-SED-06	X		х						Leverett Pond	08/17/00	AMRO AMRO	X	X									
LP-SED-07	X		Λ.						Leverett Pond	08/18/00	AMRO	X	X	X	X	X	X	X	X	Х	X	
LP-SED-07				X					Leverett Pond	08/18/00	AMRO	X	X	X	Х	X	X	X	X	X	X	
LP-SED-08	X		v						Leverett Pond Leverett Pond	08/17/00	AMRO AMRO	X	X									
LP-SED-08 LP-SED-08DUP	Х		X						Leverett Pond	08/17/00	AMRO	X	X									
LP-SED-09	X								Leverett Pond	08/18/00	AMRO	X	X	X	X	X	X	X	X	X	Х	
LP-SED-09			X						Leverett Pond	08/18/00	AMRO	X	X	X	X	X	X	X	X	X	X	
LP-SED-10 LP-SED-10	X				Х				Leverett Pond Leverett Pond	08/07/00	AMRO AMRO	X	X									
LP-SED-10					^	X			Leverett Pond	08/07/00	AMRO	X	X									
LP-SED-11	X								Leverett Pond	08/22/00	AMRO	X	X	X	X	X	X	X	X	X	X	
LP-SED-11			X	v					Leverett Pond Leverett Pond	08/22/00	AMRO AMRO	X	X	X	X	X	X	X	X	X	X	
LP-SED-11 LP-SED-12	X	-		·X					Leverett Pond	08/22/00	AMRO	X	X	Λ	Λ	^		Λ	Λ	^	^	
LP-SED-12			X						Leverett Pond	08/18/00	AMRO	Х	X									
LP-SED-12					X				Leverett Pond	08/18/00	AMRO	X	X	v	v	v	v	v	v	v	v	
LP-SED-13	X		X						Leverett Pond Leverett Pond	08/23/00 08/23/00	AMRO AMRO	X	X	X	X	X	X	X	X	X	X	
LP-SED-13 LP-SED-13			Λ		X				Leverett Pond	08/23/00	AMRO	X	X	X	X	X	X	X	X	X	X	
LP-SED-14	Х								Leverett Pond	08/18/00	AMRO	Х	X									
LP-SED-14				Х					Leverett Pond	08/18/00	AMRO	X	X	3/	37	3/	3/	. V	v	V	v	
LP-SED-15	X		X						Leverett Pond Leverett Pond	08/22/00	AMRO AMRO	X	X	X	X	X	X	X	X	X	X	
LP-SED-15 LP-SED-16	Х	1							Leverett Pond	08/23/00	AMRO	X	X	1	1	1				1	72	
LP-SED-16				Х					Leverett Pond	08/23/00	AMRO	X	X									
LP-SED-16					X				Leverett Pond	08/23/00	AMRO	X	X	v	V	-	v	v	v	V	V	
LP-SED-17	X	-	Х						Leverett Pond Leverett Pond	08/21/00	AMRO AMRO	X	X	X	X	X	X	X	X	X	X	-
LP-SED-17 LP-SED-17			^			X			Leverett Pond	08/21/00	AMRO	X	X	X	X	X	X	Х	X	X	X	
LP-SED-18	Х								Leverett Pond	08/22/00	AMRO	X	X									
LP-SED-18				X					Leverett Pond	08/22/00	AMRO	X	X	X	X	X	X	X	X			
LP-SED-19 LP-SED-19	X	-	_	-	X				Leverett Pond Leverett Pond	08/07/00	AMRO AMRO	X	X	X	X	X	X	X	X			
LP-SED-19					Α.	Х			Leverett Pond	08/07/00	AMRO	X	X	X	X	X	X	X	Х			
LP-SED-20	X								Leverett Pond	08/23/00	AMRO	X	X									
LP-SED-20			X						Leverett Pond	08/23/00	AMRO AMRO	X	X	-	-					-		
LP-SED-20 LP-SED-20DUP			X	X					Leverett Pond Leverett Pond	08/23/00	AMRO	X	X	-		1		-				
LP-SED-21	X								Leverett Pond	08/21/00	AMRO	X	X	X	X	X	X	Х	X	Х	Х	
LP-SED-21				X					Leverett Pond	08/21/00	AMRO	X	X	X	X	X	X	X	X	X	X	
LP-SED-21	-			-	X		-		Leverett Pond	08/21/00	AMRO AMRO	X	X	X	X	X	X	X	X	X	X	
LP-SED-22 LP-SED-22	X		X	-					Leverett Pond Leverett Pond	08/22/00	AMRO	X	X									
LP-SED-22					X				Leverett Pond	08/22/00	AMRO	X	X									
LP-SED-23	Х				-		-		Leverett Pond	08/23/00	AMRO	X	X	X		X	X	X	X	X	X	
LP-SED-23 LP-SED-23	-			-	X		-	X	Leverett Pond Leverett Pond	08/23/00	AMRO AMRO	X	X	X	_	X	X	-	X	X	X	-
LP-SED-24	X			-		-	1	^	Leverett Pond	08/21/00	AMRO	X	X	-								
LP-SED-24				X					Leverett Pond	08/21/00	AMRO	X	X									
LP-SED-24	-						-	X	Leverett Pond	08/21/00	AMRO	X	X	-	-			-	-			
LP-SED-24DUP LP-SED-25	X			-	-		-	-	Leverett Pond Leverett Pond	08/21/00	AMRO AMRO	X	X	X	X	X	X	X		X	X	
LP-SED-25	^			X					Leverett Pond	08/21/00	AMRO	X	X		X	X	X	X		X	X	
LP-SED-25								Х	Leverett Pond	08/21/00	AMRO	X	X	X	X	X	X	X	X	X	X	
LP-SED-26	X			34	-				Leverett Pond	08/22/00	AMRO	X	X	-	+	-		-	-			
LP-SED-26 LP-SED-26	-			X	-	-	-	X	Leverett Pond Leverett Pond	08/22/00	AMRO AMRO	X		-	+-	-			-			
RW-PF-01									Riverway	08/10/00	Toxikon											X
RW-PF-02									Riverway	08/17/00	Toxikon								-			X
RW-SED-PF-3	-			-	-	-	-	-	Riverway	08/18/00	Toxikon	-		-	-		-	-	-	-		X
RW-PF-03 RW-SED-01	X			-		-	-	-	Riverway Riverway	08/30/00	Toxikon Toxikon	X	X	X	X	X	X	X	X	X	X	^
RW-SED-01	^			X					Riverway	08/16/00	Toxikon	X	+		_	_	X	X	X	X	X	
RW-SED-01					X				Riverway	08/16/00	Toxikon	_	X		X	X	X	X	X	X	X	
RW-SED-02			X						Riverway	08/16/00	Toxikon	X	X			1				X	X	

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		\$ / E	2. Fee.	\$ / E	\$ /		10 lee	12/2/ 12/2/	Area	Date		,	THAT A	A SO	//	Shicides R. Cshicides		Dinisous C		20	/ ~~/	200
Station	/0	' /~	`/~	1/4	°/&	6/6	ž/\$	1/2	Area	Submitted to Lab	Laboratory			3/5	9/			50/	000	2/3	\$ / à	F
RW-SED-02				X					Riverway	08/16/00	Toxikon	X	X	7	1	/~	7	1	1/2	X	$\frac{\sqrt{x}}{x}$	12
RW-SED-02						X			Riverway	08/16/00	Toxikon	X	_	+-	+-	1	+	+	+	X	X	-
RW-SED-03	X	-	-	-	-	-			Riverway	08/17/00	Toxikon	X		X	X	X	X	X	X	X	X	1
RW-SED-03	-			-	X	-	1	-	Riverway	08/17/00	Toxikon	X		X	X	X	X	X	_		X	
RW-SED-04	X	+	-	-	+-	+-	X	-	Riverway	08/17/00	Toxikon	X		X	X	X	X	X	X	X	X	
RW-SED-04	1 1	_	1	X	-	+	-		Riverway Riverway	08/11/00	Toxikon Toxikon	X		+	-	-	-	-	-	1		
RW-SED-04						 	1	X	Riverway	08/11/00	Toxikon	X		+	+	+	-	+-	-	+	-	-
RW-SED-05	X								Riverway	08/17/00	Toxikon	X		X	X	X	X	X	X	X	X	-
RW-SED-05	-	-	_	X					Riverway	08/17/00	Toxikon	X	_	X	X	X	X	X	$\frac{\hat{x}}{x}$	X	X	-
RW-SED-05			-	-	X				Riverway	08/17/00	Toxikon	X	X	X	X	X	X	X	X	X	X	-
RW-SED-06	X	-	-	X	-	-	-	-	Riverway	08/17/00	Toxikon	X										
RW-SED-06	-		-	1-	-	X	_		Riverway Riverway	08/17/00	Toxikon	X		-	-	-	_	-				
RW-SED-07	X				 	A	-		Riverway	08/17/00	Toxikon Toxikon	X		1 7/	1	-	-	-	-	-		
RW-SED-07				Х					Riverway	08/18/00	Toxikon	X		X	X	X	X	X	X	X	X	
RW-SED-07					X				Riverway	08/18/00	Toxikon	X	_	X	X	X	X	X	X	X	X	
RW-SED-08	X								Riverway	08/18/00	Toxikon	X	_		-	1	1	1	1	A	1	-
RW-SED-08	-	-	X	1		-			Riverway	08/18/00	Toxikon	X	X									
RW-SED-08	-		X	X					Riverway	08/18/00	Toxikon	X	_									
RW-SED-09	1		_^_		X				Riverway Riverway	08/18/00	Toxikon	X		X	X	X	X	X	X	X	X	
RW-SED-09					A		X		Riverway	08/18/00	Toxikon Toxikon	X	X	X	X	X	X	X	X	X	X	
RW-SED-11	X								Riverway	10/20/00	Toxikon	X	X	X	X	X	X	X	X	X	X	
RW-SED-12	X								Riverway	10/20/00	Toxikon	X	X	X	X	X	X	X	X	X	X	
RW-SED-13	X								Riverway	10/20/00	Toxikon	X	X	X	X	X	X	X	X	X	X	
RW-SED-16 RW-SED-17	X								Riverway	10/20/00	Toxikon	X	X	X	X	X	X	Х	X	X	X	
RW-SED-18	X							-	Riverway	10/20/00	Toxikon	X	X	X	X	X	X	X	X	X	X	
RW-SED-19	X								Riverway Riverway	10/20/00 09/01/00	Toxikon	X	X	X	X	X	X	X	X	X	X	
RW-SED-19			X						Riverway	09/01/00	Toxikon Toxikon	X	X	X	X	X	X	X	X	X	X	_
RW-SED-19				Х					Riverway	09/01/00	Toxikon	X	X	X	X	X	X	X	X	X	X	
RW-SED-20	X								Riverway	09/01/00	Toxikon	X	X		7.	^	Λ.	^		A	^	-
RW-SED-20	7.5		X						Riverway	09/01/00	Toxikon	X	X									
RW-SED-21 RW-SED-21	X		Х						Riverway	09/01/00	Toxikon	X	X	X	Х	X	X	X		X	X	
RW-SED-22	X		^						Riverway	09/01/00	Toxikon	X	X	X	X	X	X	X	X	X	X	
RW-SED-22	1		X			-			Riverway Riverway	08/30/00	Toxikon Toxikon	X	X				-					
RW-SED-23	X								Riverway	08/30/00	Toxikon	X	X	Х	Х	Х	х	Х	V	v	V	
RW-SED-23			X						Riverway	08/30/00	Toxikon	X	X	X	X	X	X	X	X	X	X	\dashv
RW-SED-23					X				Riverway	08/30/00	Toxikon	X	X	X	X	X	X	X	X	X	$\hat{\mathbf{x}}$	\dashv
RW-SED-24	X						_		Riverway	08/30/00	Toxikon	X	X									
RW-SED-24 V-SED-24DUP				X					Riverway	08/30/00	Toxikon	X	X									
RW-SED-25	Х		-	^					Riverway	08/30/00	Toxikon	X	X	,.	-,-							
RW-SED-25			X					-	Riverway Riverway	08/30/00	Toxikon Toxikon	X	X	X	X	X	X	X	X	X	X	
RW-SED-26	X								Riverway	08/30/00	Toxikon	X	X	X	X	X	X	X	X	X	X	
RW-SED-26			X						Riverway	08/30/00	Toxikon	X	X								-	\dashv
RW-SED-27	X								Riverway	08/30/00	Toxikon	X	X	X	Х	X	X	X	X	Х	X	
RW-SED-27	v		X	_					Riverway	08/30/00	Toxikon	X	X	X	X	X	Х	Х	X	X	X	
RW-SED-28 RW-SED-28	X	-	X						Riverway	08/30/00	Toxikon	X	X									
RW-SED-28		-	^	X		-	-	-	Riverway	08/30/00	Toxikon	X	X									
V-SED-28DUP			x			+	-	-	Riverway Riverway	08/30/00	Toxikon Toxikon	X	X		-		-					_
RW-SED-29	X								Riverway	08/30/00	Toxikon	X	X	X	X	X	X	X	X	X	X	
RW-SED-29			X						Riverway	08/30/00	Toxikon	X	X	X	X	X	X	$\frac{\hat{x}}{x}$	X	X	$\frac{\lambda}{X}$	-
RW-SED-30	X								Riverway	08/30/00	Toxikon	X	X				-					
RW-SED-30			X		31				Riverway	08/30/00	Toxikon	Χ	Х									
RW-SED-30	X				X	-	-		Riverway	08/30/00	Toxikon	Χ	Х									
RW-SED-31	^		X		+	-	-		Riverway	08/30/00	Toxikon	X	X	X	X	X	X	X	X	X	X	
RW-SED-31			^	X	+	+		+	Riverway Riverway	08/30/00	Toxikon	X	X	X	X	X	X	X	X	X	X	_
RW-SED-32	X							-	Riverway	08/30/00	Toxikon Toxikon	X	X	X	X	X	X	X	X	X	X	-
			X						Riverway	08/30/00	Toxikon	X	X	-	-	-	+	-	-	-	-	\dashv
									Riverway	08/30/00	Toxikon	X	X						-	-	-	-
W-SED-32DUP	X	-										-		-		_	_	$\overline{}$				
W-SED-32DUP RW-SED-33	X								Riverway	08/30/00	Toxikon	X	X	X	X	X	X	X	X	X	X	
RW-SED-32 W-SED-32DUP RW-SED-33 RW-SED-33 RW-SED-34	_		X						Riverway Riverway	08/30/00 08/30/00 08/29/00	Toxikon Toxikon Toxikon	X X X	X X	X	X	X	X	X	X	X X	X X	

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Station	/a/	4/2	\ \	18	/ %	\\$\/.	N Area	Lab	Laboratory	10	12	12	120	120	<u>/ ଫ</u>	/ 0	15	/ 3	12	\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\
RW-SED-35	X						Riverway	08/29/00	Toxikon	X	X	X	X	X	X	X	X	X	X	
RW-SED-35			X				Riverway	08/29/00	Toxikon	X	X	X	X	Х	X	X	X	X	X	
RW-SED-36	X						Riverway	08/29/00	Toxikon	X	X									
RW-SED-36		X					Riverway	08/29/00	Toxikon	X	X									
RW-SED-37	X						Riverway	08/29/00	Toxikon	X	X	X	X	X	X	X	X	X	X	
RW-SED-37		X					Riverway	08/29/00	Toxikon	X	X	X	X	X	X	X	X	X	X	
RW-SED-38	X						Riverway	08/29/00	Toxikon	X	X									
RW-SED-38		X					Riverway	08/29/00	Toxikon	X	X									
RW-SED-38			X				Riverway	08/29/00	Toxikon	X	X									
RW-SED-39	X						Riverway	08/25/00	Toxikon	X	X	X	X	X	X	X	X	X	X	
RW-SED-39			X				Riverway	08/25/00	Toxikon	X	X	X	X	X	X	X	X	X	X	
WD-PF-1							Wards Pond	08/03/00	AMRO	1										X
WD-SED-1	X						Wards Pond	08/08/00	AMRO	X	X	X	X	X	X	X	X			
WD-SED-1		X					Wards Pond	08/08/00	AMRO	X	X	X	X	Х	X	X	X			
WD-SED-1				X			Wards Pond	08/08/00	AMRO	X	X	X	X	X	X	X	X			
WD-SED-2	X						Wards Pond	08/04/00	AMRO	X	X									
WD-SED-2				X			Wards Pond	08/04/00	AMRO	X	X									
WD-SED-2					X		Wards Pond	08/04/00	AMRO	X	X									
WD-SED-3	X						Wards Pond	10/19/00	AMRO	X	X	X	X	X	X	X	X			
WD-SED-4	X						Wards Pond	08/04/00	AMRO	X	X								ļ	
WD-SED-4				X			Wards Pond	08/04/00	AMRO	X	X									
WD-SED-5	X						Wards Pond	-08/03/00	AMRO	X	X	X	X	X	X	X	X			
WD-SED-5			X				Wards Pond	08/03/00	AMRO	X	X	X	X	X	X	X	X			
WD-SED-5				X			Wards Pond	08/03/00	AMRO	X	X	X	X	X	X	X	X			
WD-SED-6	X						Wards Pond	08/03/00	AMRO	X	X	X	X	X	X	X	X			
WD-SED-6			X				Wards Pond	08/03/00	AMRO	X	X	X	X	X	X	X	X			
WD-SED-6				X	L		Wards Pond	08/03/00	AMRO	X	X	X	X	X	X	X	X		-	
WL-SED-1	X						Willow Pond	08/09/00	AMRO	X	X	X	X	X	X	X	X			
WL-SED-1			X				Willow Pond	08/09/00	AMRO	X	X	X	X	X	X	X	X			
WL-SED-1				X			Willow Pond	08/09/00	AMRO	X	X	X	X	X	X	X	X	1		
WL-SED-1						X	Willow Pond	08/09/00	AMRO	X	X	X	X	X	X	X	X		-	
WL-SED-2	X						Willow Pond	10/19/00	AMRO	X	X	X	X	X	X	X	X			
WL-SED-3	X						Willow Pond	10/19/00	AMRO	X	X	X	X	X	X	X	X			
WL-SED-4	X						Willow Pond	10/19/00	AMRO	X	X	X	X	X	X	X	X			
WL-SED-5	X				-		Willow Pond	08/09/00	AMRO	X	X							-		
WL-SED-5			X				Willow Pond	08/09/00	AMRO	X	X	X	X	X	X	X	X		-	
WL-SED-5				X			Willow Pond	08/09/00	AMRO	X	X	X	X	X	X	X	X	-	-	
WL-SED-PF							Willow Pond	08/09/00	AMRO											Х

MUDDY RIVER RESTORATION PROJECT CHARLES GATE VOLATILE PETROLEUM HYDROCARBON SEDIMENT SAMPLE ANALYSIS RESULTS (mg/kg)

Sample ID	Sample Depth (ft BGS)	Sample Date	C5-C8 Aliphatic Hydrocarbons	C9-C10 Aromatic Hydrocarbons	C9-C12 Aliphatic Hydrocarbons	Methyl tert-butyl ether	Benzene	Toluene	Ethylbenzene	m,p-Xylene	o-Xylene	Naphthalene
CG-SED-1	1-3	7/25/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
CG-SED-1	2-4	7/25/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
CG-SED-1	4-6	7/25/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
CG-SED-2	0-2	7/25/00	ND	ND	1.6	ND	ND	ND	ND	ND	ND	ND
CG-SED-2	4-6	7/25/00	ND	ND	0.75	ND	ND	ND	ND	ND	ND	ND
CG-SED-2	8-10	7/25/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
CG-SED-3	0-2	7/27/00	ND	ND	1.6	ND	ND	ND	ND	ND	ND	ND
CG-SED-3	6-8	7/27/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
CG-SED-3	8-10	7/27/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
CG-SED-4	0-2	7/28/00	ND	3.2	8.3	ND	ND	ND	ND	ND	ND	ND
CG-SED-4	2-4	7/28/00	ND	ND	0.72	ND	ND	ND :	ND	ND	ND	ND
CG-SED-4	8-10	7/28/00	ND	ND	1.0	ND	ND	ND	ND	ND	ND	ND
CG-SED-5	0-2	7/28/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
CG-SED-5	2-4	7/28/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
CG-SED-6	0-2	7/28/00	ND	2.0	6.2	ND	ND	ND	ND	ND	ND	1.0
CG-SED-6	2-4	7/28/00	ND	ND	1.6	ND	ND	ND	ND	ND	ND	ND
CG-SED-6	8-10	7/28/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

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MUDDY RIVER RESTORATION PROJECT CHARLES GATE EXTRACTABLE PETROLEUM HYDROCARBON SEDIMENT SAMPLE ANALYSIS RESULTS (mg/kg)

Sample ID	Sample Depth (ft BGS)	Sample Date	C11-C22 Aromatic Hydrocarbons	C19-C36 Aliphatic Hydrocarbons	C9-C18 Aliphatic Hydrocarbons	2-Methyl- naphthalene	Acenaphthene	Acenaphthylene	Anthracene	Benzo(a) anthracene	Benzo(a)pyrene	Benzo(b) fluoranthene	Benzo(g,h,i) perylene	Benzo(k) fluoranthene	Chrysene	Dibenz(a,h) anthracene
CG-SED-1	1-3	7/25/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
CG-SED-1	2-4	7/25/00	ND	ND	ND	0.42	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
CG-SED-1	4-6	7/25/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
CG-SED-2	. 0-2	7/25/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
CG-SED-2	4-6	7/25/00	ND	ND	ND	ND	ND	ND	ND .	ND	ND	ND	ND	ND	ND	ND
CG-SED-2	8-10	7/25/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
CG-SED-3	0-2	7/27/00	ND	88	ND	ND	ND	ND	ND	ND	ND	0.39	ND	ND	0.36	ND
CG-SED-3	6-8	7/27/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.48	ND	ND	0.41	ND
CG-SED-3	8-10	7/27/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
CG-SED-4	0-2	7/28/00	ND	130	ND	ND	ND	ND	ND	0.59	0.57	0.79	ND	ND	0.61	ND
CG-SED-4	2-4	7/28/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
CG-SED-4	8-10	7/28/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
CG-SED-5	0-2	7/28/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
CG-SED-5	2-4	7/28/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
CG-SED-6	0-2	7/28/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
CG-SED-6	2-4	7/28/00	ND	ND	ND	ND	0.65	ND	2.4	2.1	1.8	2.1	0.57	0.92	1.9	ND
CG-SED-6	8-10	7/28/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

Notes:

-- = Not Analyzed
ND = Not Detected

MUDDY RIVER RESTORATION PROJECT CHARLES GATE

EXTRACTABLE PETROLEUM HYDROCARBON SEDIMENT SAMPLE ANALYSIS RESULTS (mg/kg)

Sample ID	Sample Depth (ft BGS)	Sample Date	Fluoranthene	Fluorene	Indeno(1,2,3- cd)pyrene	Naphthalene	Phenanthrene	Pyrene
CG-SED-1	1-3	7/25/00	ND	ND	ND	ND	ND	ND
CG-SED-1	2-4	7/25/00	ND	ND	ND	ND	ND	ND
CG-SED-1	4-6	7/25/00	ND	ND	ND	ND	ND	ND
CG-SED-2	0-2	7/25/00	ND	ND	ND	ND	ND	ND
CG-SED-2	4-6	7/25/00	ND	ND	ND	ND	ND	ND
CG-SED-2	8-10	7/25/00	ND	ND	ND	ND	ND	ND
CG-SED-3	0-2	7/27/00	0.84	ND	ND	ND	0.38	0.7
CG-SED-3	6-8	7/27/00	0.72	ND	ND	ND	ND	0.68
CG-SED-3	8-10	7/27/00	ND	ND	ND	ND	ND	ND
CG-SED-4	0-2	7/28/00	1.5	ND	ND	ND	0.8	1.2
CG-SED-4	2-4	7/28/00	ND	ND	ND	ND	ND	ND
CG-SED-4	8-10	7/28/00	ND	ND	ND	ND	ND	ND
CG-SED-5	0-2	7/28/00	ND	ND	ND	ND	ND	ND
CG-SED-5	2-4	7/28/00	ND	ND	ND	ND	ND	ND
CG-SED-6	0-2	7/28/00	0.43	ND	ND	ND	0.36	0.41
CG-SED-6	2-4	7/28/00	5.3	0.79	0.73	ND	5.3	4.2
CG-SED-6	8-10	7/28/00	0.73	ND	ND	ND	0.51	0.64

Notes:

--- = Not Analyzed ND = Not Detected

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MUDDY RIVER RESTORATION PROJECT CHARLES GATE PCB SEDIMENT SAMPLE ANALYSIS RESULTS (mg/kg)

	Sample								
	Depth	Sample	Aroclor						
Sample ID	(ft BGS)	Date	1016	1221	1232	1242	1248	1254	1260
CG-SED-1	1-3	7/25/00	***				***		
CG-SED-1	2-4	7/25/00			***		eress		
CG-SED-1	4-6	7/25/00	ND						
CG-SED-2	0-2	7/25/00	ND	ND	ND	ND	ND	0.088	0.035
CG-SED-2	4-6	7/25/00	ND	ND	ND	ND	ND	0.047	ND
CG-SED-2	8-10	7/25/00	ND						
CG-SED-3	0-2	7/27/00					tenun		
CG-SED-3	6-8	7/27/00	ND						
CG-SED-3	8-10	7/27/00	ND						
CG-SED-4	0-2	7/28/00		****			****		
CG-SED-4	2-4	7/28/00	ND	ND	ND	ND	ND	0.23	0.095
CG-SED-4	8-10	7/28/00	ND	ND	ND	ND	ND	0.043	ND
CG-SED-5	0-2	7/28/00	ND						
CG-SED-5	2-4	7/28/00	ND						
CG-SED-6	0-2	7/28/00	ND	ND	ND	ND	ND	0.044	ND
CG-SED-6	2-4	7/28/00	ND	ND	ND	ND	ND	0.1	0.044
CG-SED-6	8-10	7/28/00	ND						

Notes:

-- = Not Analyzed ND = Not Detected

	Sample													Endo-	
	Depth	Sample					alpha-	alpha-				Endo-	Endo-	sulfan	
Sample ID	(ft BGS)	Date	4,4'-DDD	4.4'-DDE	4.4'-DDT	Aldrin	chlordane	BHC	heta-BHC	delta-BHC	Dieldrin		sulfan II		Dad.
								2110	Dota Dire	GCIM-DITC	Dicidin	Sullati I	Sunan II	Sunate	Endrin
CG-SED-1	1-3	7/25/00													
CG-SED-1	2-4	7/25/00					***							***	
CG-SED-1	4-6	7/25/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
CG-SED-2	0-2	7/25/00	0.026	0.015	0.0095	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
CG-SED-2	4-6	7/25/00	0.016	0.012	0.0049	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
CG-SED-2	8-10	7/25/00	0.0082	0.0024	ND	ND	0.0011	ND	ND	ND	ND	ND	ND	ND	ND
CG-SED-3	0-2	7/27/00				_			Manage				710		140
CG-SED-3	6-8	7/27/00	0.0098	0.0025	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
CG-SED-3	8-10	7/27/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
CG-SED-4	0-2	7/28/00						***	was .			112	210		142
CG-SED-4	2-4	7/28/00	0.033	0.027	ND	ND	ND	ND	ND	ND	0.014	ND	ND	ND	ND
CG-SED-4	8-10	7/28/00	0.0032	0.0055	ND	ND	ND	ND	ND	ND	0.0045	ND	ND	ND	ND
CG-SED-5	0-2	7/28/00	ND	0.0061	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
CG-SED-5	2-4	7/28/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
CG-SED-6	0-2	7/28/00	0.0092	0.0049	ND	ND	ND	ND	ND	ND	0.004	ND	ND	ND	ND
CG-SED-6	2-4	7/28/00	0.033	0.012	ND	ND	0.0061	ND	ND	ND	ND	ND	ND	ND	ND
CG-SED-6	8-10	7/28/00	0.012	ND	ND	ND	ND	ND	ND	ND	ND	ND	·ND	ND	ND

Notes:

--- = Not Analyzed ND = Not Detected

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MUDDY RIVER RESTORATION PROJECT CHARLES GATE PESTICIDE SEDIMENT SAMPLE ANALYSIS RESULTS (mg/kg)

	Sample										
	Depth	Sample	Endrin	Endrin	gamma-	gamma-	Hepta-	Heptachlor	Methoxy-		Technical
Sample ID	(ft BGS)	Date	aldehyde	ketone	BHC	Chlordane	chlor	epoxide	chlor	Toxaphene	
CG-SED-1	1-3	7/25/00									
CG-SED-1	2-4	7/25/00									
CG-SED-1	4-6	7/25/00	ND	ND	ND	ND	ND	ND	ND	ND	ND ND
CG-SED-2	0-2	7/25/00	ND	ND	ND	0.0021	ND	ND	ND	ND	ND
CG-SED-2	4-6	7/25/00	ND	ND	ND	ND	ND	ND	ND	ND	ND
CG-SED-2	8-10	7/25/00	ND	ND	ND	ND	ND	ND	ND	ND	ND
CG-SED-3	0-2	7/27/00		***							
CG-SED-3	6-8	7/27/00	ND	ND	ND	ND	ND	ND	ND	ND	ND
CG-SED-3	8-10	7/27/00	ND	ND	ND	ND	ND	ND	ND	ND	ND
CG-SED-4	0-2	7/28/00	***								
CG-SED-4	2-4	7/28/00	ND	ND	ND	ND	ND	ND	ND	ND	ND
CG-SED-4	8-10	7/28/00	ND	ND	ND	ND	ND	ND	ND	ND	ND
CG-SED-5	0-2	7/28/00	ND	ND	ND	ND	ND	ND	ND	ND	ND
CG-SED-5	2-4	7/28/00	ND	ND	ND	ND	ND	ND	ND	ND	ND
CG-SED-6	0-2	7/28/00	ND	ND	ND	ND	ND	ND	ND	ND	ND
CG-SED-6	2-4	7/28/00	ND	ND	ND	ND	ND	ND	ND	ND	ND
CG-SED-6	8-10	7/28/00	ND	ND	ND	ND	ND	ND	ND	ND ·	·ND

--- = Not Analyzed ND = Not Detected

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MUDDY RIVER RESTORATION PROJECT CHARLES GATE INORGANIC SEDIMENT SAMPLE ANALYSIS RESULTS (mg/kg)

	Sample										
	Depth	Sample					TCLP Lead				
Sample ID	(ft BGS)	Date	Arsenic	Barium	Cadmium	Chromium	(mg/L)	Lead	Mercury	Selenium	Silver
CG-SED-1	1-3	7/25/00	ND	ND	ND	15		7.1	0.051	ND	ND
CG-SED-1	2-4	7/25/00	ND	ND	ND	12		9.6	0.032	ND	ND
CG-SED-1	4-6	7/25/00	ND	71	ND	36	***	10	ND	ND	ND
CG-SED-2	0-2	7/25/00	ND	ND	ND	7.8		74	0.13	ND	ND
CG-SED-2	4-6	7/25/00	ND	ND	ND	9.4	5 mm	27	0.21	ND	ND
CG-SED-2	8-10	7/25/00	ND	ND	ND	11	ND	200	0.071	ND	ND
CG-SED-3	0-2	7/27/00	ND	ND	ND	68		ND	0.098	ND	ND
CG-SED-3	6-8	7/27/00	ND	ND	ND	20	2.1	250	0.18	ND	ND
CG-SED-3	8-10	7/27/00	ND	ND	ND	9.9	*****	7.3	ND	ND	ND
CG-SED-4	0-2	7/28/00	ND	51	ND	31	0.45	130	0.48	ND	ND
CG-SED-4	2-4	7/28/00	ND	ND	ND	8.1		26	0.049	ND	ND
CG-SED-4	8-10	7/28/00	ND	ND	0.93	13		21	0.16	ND	ND
CG-SED-5	0-2	7/28/00	ND	ND	ND	22		13	ND	ND	ND
CG-SED-5	2-4	7/28/00	ND	ND	ND	23	,	· ND	ND	ND	ND
CG-SED-6	0-2	7/28/00	ND	ND	ND	5.7		41	ND	ND	ND
CG-SED-6	2-4	7/28/00	ND	ND	ND	18	0.97	140	ND	ND	ND
CG-SED-6	8-10	7/28/00	ND	ND	ND	17		72	0.28	ND-	ND

Notes

--- = Not Analyzed ND = Not Detected

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MUDDY RIVER RESTORATION PROJECT BACK BAY FENS VOLATILE PETROLEUM HYDROCARBON SEDIMENT SAMPLE ANALYSIS RESULTS (mg/kg)

Sample ID	Sample Depth (ft BGS)	Sample Date	C5-C8 Aliphatic Hydrocarbons	C9-C10 Aromatic Hydrocarbons	C9-C12 Aliphatic Hydrocarbons	Methyl tert-butyl ether	Benzene	Toluene	Ethylbenzene	m,p-Xylene	o-Xylene	Naphthalene
BBF-SED-01	0-2	10/18/00	ND	3.0	5.1	ND) TD	2170				
BBF-SED-02	0-2	7/19/00	3.1	1.3	2.0	ND	ND ND	ND	ND	ND	ND	ND
BBF-SED-02	6-8	7/19/00	ND	ND	ND	ND	ND	ND ND	ND	ND	ND	ND
BBF-SED-02	8-10	7/19/00	ND	ND	ND	ND	ND	ND	ND ND	ND	ND	ND
BBF-SED-03	0-2	7/19/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
BBF-SED-03	2-4	7/19/00	ND	ND	ND	ND	ND	ND	ND	ND ND	ND	ND
BBF-SED-04	0-2	7/20/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
BBF-SED-04	2-4	7/20/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND ND
BBF-SED-04	6-8	7/20/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
BBF-SED-05	0-2	7/21/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
BBF-SED-05	2-4	7/21/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
BBF-SED-05	8-10	7/21/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
BBF-SED-06	0-2	7/25/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
BBF-SED-06	4-6	7/25/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
BBF-SED-06	6-8	7/25/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
BBF-SED-07	0-2	9/7/00	ND	ND	7.0	ND	ND	ND	ND	ND	ND	ND
BBF-SED-07	2-4	9/7/00	ND	ND	2.5	ND	ND	ND	ND	ND	ND	ND
BBF-SED-07	6-8	9/7/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
BBF-SED-08	0-2	9/6/00	ND	ND	1.2	ND	ND	ND	ND	ND	ND	ND
BBF-SED-08	2-4	9/6/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
BBF-SED-09	0-2	9/6/00	ND	ND	5.9	ND	ND	ND	ND	ND	ND	ND
BBF-SED-09	2-4	9/6/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
BBF-SED-10	0-2	9/6/00	ND	ND	2.9	ND	ND	ND	ND	ND	ND	ND
BBF-SED-10	2-4	9/6/00	3.7	ND	ND	ND	ND	ND	ND	ND	ND	ND
BBF-SED-II	0-2	7/26/00	ND	ND	1.4	ND	ND	ND	ND	ND	ND	ND
BBF-SED-11	6-8	7/26/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
BBF-SED-11	8-10	7/26/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
BBF-SED-12	0-2	9/6/00	ND	ND	14	ND	ND	ND	ND	ND	ND	ND
BBF-SED-12	2-4	9/6/00	ND	ND	4.1	ND	ND	ND	ND	ND	ND	ND
BBF-SED-12	6-8	9/6/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
BBF-SED-13	0-2	9/6/00	ND	ND	9.8	ND	ND	ND	ND	ND	ND	ND
BBF-SED-13	2-4	9/6/00	ND	ND	1.6	ND	ND	ND	ND	ND	ND	ND

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MUDDY RIVER RESTORATION PROJECT BACK BAY FENS VOLATILE PETROLEUM HYDROCARBON SEDIMENT SAMPLE ANALYSIS RESULTS (mg/kg)

Sample ID	Sample Depth (ft BGS)	Sample Date	C5-C8 Aliphatic Hydrocarbons	C9-C10 Aromatic Hydrocarbons	C9-C12 Aliphatic Hydrocarbons	Methyl tert-butyl ether	Benzene	Toluene	Ethylbenzene	m,p-Xylene	o-Xylene	Naphthalene
BBF-SED-13	4-6	9/6/00	ND) III	200							
BBF-SED-14	0-2	9/6/00	ND	ND ND	ND	ND	ND	ND	ND	ND	ND	ND
BBF-SED-14	2-4	9/6/00	ND		3.8	ND	ND	ND	ND	ND	ND	ND
BBF-SED-15	2-4	7/26/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
BBF-SED-15	4-6	7/26/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
BBF-SED-15	6-8	7/26/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
BBF-SED-16	0-2	9/6/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
BBF-SED-16	2-4	9/6/00	ND	ND ND	6	ND	ND	ND	ND	ND	ND	ND
BBF-SED-16	4-6	9/6/00	ND	ND	6.6	ND	ND	ND	ND	ND	ND	ND
BBF-SED-17	0-2	7/26/00	ND		ND	ND	ND	ND	ND	ND	ND	ND
BBF-SED-17	2-4	7/26/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
BBF-SED-17	6-8	7/26/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	2.3
BBF-SED-18	0-2	7/27/00	ND	4.5	ND	ND	ND	ND	ND	ND	0.082	32
BBF-SED-18	2-4	7/27/00	ND	ND ND	ND	ND	ND	ND	ND	ND	ND	ND
BBF-SED-18	4-6	7/27/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
BBF-SED-19	0-2	8/15/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
BBF-SED-19	4-6	8/15/00	ND		1	ND	ND	ND	ND	ND	ND	ND
BBF-SED-19	8-10	8/15/00	ND	ND	0.88	ND	ND	ND	ND	ND	ND	ND
BBF-SED-20	0-2	8/14/00	ND	ND	0.66	ND	ND	ND	ND	ND	ND	ND
BBF-SED-20	4-6	8/14/00	ND	ND	3	ND	ND	ND	ND	ND	ND	ND
BBF-SED-21	0-2*	8/14/00	12.85	ND	1.6	ND	ND	ND	ND	ND	ND	ND
BBF-SED-21A	2-4	8/14/00	12.63	ND	4.1	ND	ND	ND	ND	ND	ND	ND
BBF-SED-21A	6-8	8/14/00	14	ND ND	4	ND	ND	ND	ND	ND	ND	ND
BBF-SED-22	0-3	8/14/00	12	ND ND	3.8	ND	ND	ND	ND	ND	ND	ND
BBF-SED-22	2-4	8/14/00	23	ND ND	2.2	ND	ND	ND	ND	ND	ND	ND
BBF-SED-23	0-2	8/15/00	ND	ND	3.5	ND	ND	ND	ND	ND	ND	ND
BBF-SED-23	2-4	8/15/00	ND	ND ND	8.5	ND	ND	ND	ND	ND	ND	ND
BBF-SED-23	12-14	8/15/00	ND	ND ND	1.1 ND	ND	ND	ND	ND	ND	ND	ND
BBF-SED-24	0-2	8/11/00	ND	ND ND	6.5	ND	ND	ND	ND	ND	ND	ND
BBF-SED-24	4-6	8/11/00	ND	ND	3.5	ND	ND	ND	ND	ND	ND	ND
BBF-SED-24	6-8*	8/11/00	ND	ND ND	ND ND	ND	ND	ND	ND	ND	ND	ND
BBF-SED-25	0-2	8/11/00	7.2	14	13	ND	ND	ND	ND	ND	ND	ND
200 000 25	0-2	0/11/00	1.4	14	15	ND	ND	ND	ND	ND	ND	ND

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MUDDY RIVER RESTORATION PROJECT BACK BAY FENS VOLATILE PETROLEUM HYDROCARBON SEDIMENT SAMPLE ANALYSIS RESULTS (mg/kg)

Sample ID	Sample Depth (ft BGS)	Sample Date	C5-C8 Aliphatic Hydrocarbons	C9-C10 Aromatic	C9-C12 Aliphatic Hydrocarbons	Methyl tert-butyl ether	Benzene	Toluene	Ethylbenzene	m,p-Xylene	o-Xylene	Naphthalene
				0 4 11	0 4 1	<u> </u>	ш_	-	M		0	Z
BBF-SED-25	2-4	8/11/00	8.6	20	21	ND	ND	0.21	ND	ND	ND	ND
BBF-SED-25	6-8	8/11/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
BBF-SED-26	0-2	8/11/00	6.2	6.8	10	ND	ND	0.31	ND	ND	ND	ND
BBF-SED-26	4-6	8/11/00	ND	ND	2.2	ND	ND	ND	ND	ND	ND	ND
BBF-SED-26	12-14	8/11/00	ND	ND	1.2	ND	ND	ND	ND	ND	ND	ND
BBF-SED-27	0-2	8/11/00	14	18	21	ND	ND	0,3	ND	ND	ND	ND
BBF-SED-27	4-6	8/11/00	10	24	22	ND	ND	0.21	ND	ND	ND	ND
BBF-SED-27	6-8	8/11/00	ND	ND	3	ND	ND	ND	ND	ND	ND	ND
BBF-SED-28	0-2	8/9/00	5.6	1.3	6.2	ND	ND	ND	ND	ND	ND	ND
BBF-SED-28	2-4	8/9/00	5.6	1	8	ND	ND	ND	ND	ND	ND	ND
BBF-SED-28	10-12	8/9/00	4	ND	1.2	ND	ND	ND	ND	ND	ND	ND
BBF-SED-29	0-2	8/9/00	6.5	ND	3.7	ND	ND	ND	ND	ND	ND	ND
BBF-SED-29	4-6	8/9/00	5.8	ND	2.7	ND	ND	ND	ND	ND	ND	ND
BBF-SED-29	6-8	8/9/00	6.7	ND	1.3	ND	ND	ND	ND	ND	ND	ND
BBF-SED-30	0-2	7/27/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
BBF-SED-30	2-4	7/27/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
BBF-SED-31	0-2	7/28/00	ND	ND	3.7	ND	ND	ND	ND	ND	ND	ND
BBF-SED-31	4-6	7/28/00	4.5	5.5	9.8	ND	ND	0.083	ND	ND	ND	ND
BBF-SED-31	10-12	7/28/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
BBF-SED-32	0-2	8/9/00	5.2	9.7	6.6	ND	ND	ND	ND	ND	ND	ND
BBF-SED-32	4-6	8/9/00	5.6	6.5	4.8	ND	ND	0.28	ND	ND	ND	ND
BBF-SED-32	8-10	8/9/00	6.3	ND	2	ND	ND	ND	ND	ND	ND	ND
BBF-SED-33	0-2	7/27/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
BBF-SED-33	2-4	7/27/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
BBF-SED-33	6-8	7/27/00	ND	ND	2.9	ND	ND	ND	ND	ND	ND	ND
BBF-SED-34	0-2	8/8/00	9.2	22	20	ND	ND	ND	ND	ND	ND	ND
BBF-SED-34	4-6	8/8/00	7	11	12	ND	ND	0.22	ND	ND	ND	ND
BBF-SED-34	6-8	8/8/00	ND	ND	1.2	ND	ND	ND	ND	ND	ND	ND
BBF-SED-35	0-2	8/8/00	9.2	20	19	ND	ND	0.48	ND	ND	ND	ND
BBF-SED-35	4-6	8/8/00	5.4	ND	5.1	ND	ND	0.28	ND	ND	ND	ND
BBF-SED-35	8-10	8/8/00	3.7	ND	2.8	ND	ND	ND	ND	ND	ND	ND
BBF-SED-36	0-2	8/8/00	ND	2.2	11	ND	ND	ND	ND	ND	ND .	ND

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MUDDY RIVER RESTORATION PROJECT BACK BAY FENS VOLATILE PETROLEUM HYDROCARBON SEDIMENT SAMPLE ANALYSIS RESULTS (mg/kg)

Sample ID	Sample Depth (ft BGS)	Sample Date	C5-C8 Aliphatic Hydrocarbons	C9-C10 Aromatic Hydrocarbons	C9-C12 Aliphatic Hydrocarbons	Methyl tert-butyl ether	Benzene	Toluene	Ethylbenzene	m,p-Xylene	o-Xylene	Naphthalene
BBF-SED-36	4-6	8/8/00				-	_					
BBF-SED-36	6-8	8/8/00	ND	ND	1	ND	ND	ND	ND	ND	ND	ND
BBF-SED-37	0-2	7/28/00	ND	ND	3.5	ND	ND	ND	ND	ND	ND	ND
BBF-SED-37	4-6	7/28/00	ND	4.8	7.1	ND	ND	0.33	ND	ND	ND	ND
BBF-SED-37	6-8	7/28/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
BBF-SED-38	0-2	8/7/00	ND	ND	1.7	ND	ND	ND	ND	ND	ND	ND
BBF-SED-38	6-8	8/7/00	ND	ND	1.9	ND	ND	ND	ND	ND	ND	ND
BBF-SED-39	0-2	8/7/00	ND	23	22	ND	ND	0.28	ND	ND	ND	ND
BBF-SED-39	4-6	8/7/00	ND	9.2	8.3	ND	ND	0.29	ND	ND	ND	ND
BBF-SED-39	8-10	8/7/00	ND	ND	2.3	ND	ND	ND	ND	ND	ND	ND
BBF-SED-40	0-2	7/31/00	ND	ND	1.4	ND	ND	ND	ND	ND	ND	ND
BBF-SED-40	2-4	7/31/00	3.7	ND	ND	ND	ND	ND	ND	ND	ND	ND
BBF-SED-40	6-8	7/31/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
BBF-SED-41	0-2	8/4/00	ND	ND	2.9	ND ·	ND	ND	ND	ND	ND	ND
BBF-SED-41	4-6	8/4/00	ND	ND	1.2	ND	ND	ND	ND	ND	ND	ND
BBF-SED-41	6-8	8/4/00	ND	ND	1.6	ND	ND	ND	ND	ND	ND	ND
BBF-SED-42	0-2	7/31/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
BBF-SED-42	2-4	7/31/00	4.1	ND	ND	ND	ND	ND	ND	ND	ND	ND
BBF-SED-42	4-6	7/31/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
BBF-SED-43	0-2	8/1/00	ND	ND	2.2	ND	ND	ND	ND	ND	ND	ND
BBF-SED-43	4-6	8/1/00	ND	ND	1.7	ND	ND	ND	ND	ND	ND	ND
BBF-SED-43	6-8	8/1/00	ND	ND	1.3	ND	ND	ND	ND	ND	ND	ND
BBF-SED-44	0-2	8/4/00	ND	ND	4.1	ND	ND	0.12	ND	ND	ND	ND
BBF-SED-44	4-6	8/4/00	ND	ND	2.7	ND	ND	ND	ND	ND	ND	ND
BBF-SED-44	6-8	8/4/00	ND	ND	2.7	ND	ND	ND	ND	ND	ND	ND
BBF-SED-45	0-2	8/1/00	ND	6	12	ND	ND	0.23	ND	ND	ND	ND
BBF-SED-45	4-6	8/1/00	ND	ND	1.3	ND	ND	ND	ND	ND	ND	ND
BBF-SED-45	6-8	8/1/00	ND	ND	3.2	ND	ND	ND	ND	ND	ND	ND
BBF-SED-46	0-2	8/3/00	ND	ND	1.7	ND	ND	ND	ND	ND	ND	ND
BBF-SED-46	4-6	8/3/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
BBF-SED-46	6-8	8/3/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
BBF-SED-47	0-2	8/3/00	ND	15	18	ND	ND	0.51	ND	ND	ND	ND

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MUDDY RIVER RESTORATION PROJECT BACK BAY FENS VOLATILE PETROLEUM HYDROCARBON SEDIMENT SAMPLE ANALYSIS RESULTS (mg/kg)

Sample ID	Sample Depth (ft BGS)	Sample Date	C5-C8 Aliphatic Hydrocarbons	C9-C10 Aromatic Hydrocarbons	C9-C12 Aliphatic Hydrocarbons	Methyl tert-butyl ether	Benzene	Toluene .	Ethylbenzene	m, p-Xyiene	o-Xylene	Naphthalene
DDE CED 45												
BBF-SED-47	4-6	8/3/00	ND	ND	3.9	ND	ND	0.16	ND	ND	ND	ND
BBF-SED-47	6-8	8/3/00	ND	ND	2.6	ND	ND	ND	ND	ND	ND	ND
BBF-SED-48	0-2	8/1/00	ND	ND	6.8	ND	ND	ND	ND	ND	ND	ND
BBF-SED-48	2-4	8/1/00	ND	ND	3.4	ND	ND	ND	ND	ND	ND	NE
BBF-SED-48	4-6	8/1/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	NE
BBF-SED-49	0-2	8/2/00	ND	36	44	ND	ND	0.51	ND	ND	ND	NE
BBF-SED-49	4-6	8/2/00	ND	3.6	7	ND	ND	ND	ND	ND	ND	NE
BBF-SED-49	6-8	8/2/00	ND	ND	1.8	ND	ND	ND	ND	ND	ND	NE
BBF-SED-50	0-2	8/2/00	ND	4.9	5.1	ND	ND	0.28	ND	ND	ND	NI
BBF-SED-50	4-6	8/2/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	NI
BBF-SED-50	6-8	8/2/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	NI
BBF-SED-51	0-2	8/2/00	ND	5.1	10	ND	ND	0.18	ND	ND	ND	NI
BBF-SED-51	2-4	8/2/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	NI
BBF-SED-51	4-6	8/2/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	NI
BBF-SED-52	0-2	8/3/00	ND	4.8	7.7	ND	ND	0.27	ND	ND	ND	NI
BBF-SED-52	4-6	8/3/00	ND	ND	4.5	ND	ND	ND	ND	ND	ND	NI
BBF-SED-52	6-8	8/3/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	NI
BBF-SED-53	0-2	8/3/00	6.8	10	13	ND	ND	0.42	ND	ND	ND	NI
BBF-SED-53	4-6	8/3/00	ND	ND	0.9	ND	ND	0.21	ND	ND	.ND	NI
BBF-SED-53	6-8	8/3/00	ND	ND	0.8	ND	ND	ND	ND	ND	ND	NI
BBF-SED-54	0-2	8/2/00	8.8	18	18	ND	ND	0.68	ND	ND	ND	NI
BBF-SED-54	6-8	8/2/00	7.5	-20	19	ND	ND	0.38	ND	ND	ND	NI
BBF-SED-54	8-10	8/2/00	ND	ND	2.6	ND	ND	ND	ND	ND	ND	NI
BBF-SED-55	0-2	8/2/00	7.4	11	17	ND	ND	0.16	ND	ND	ND	NI
BBF-SED-55	6-8	8/2/00	8.1	9.4	17	ND	ND	ND	ND	ND	ND	NI
BBF-SED-55	8-10	8/2/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	NI
BBF-SED-56	0-2	8/2/00	ND	ND	1.9	ND	ND	ND	ND	ND	ND	NI
BBF-SED-56	2-4	8/2/00	ND	ND	1.4	ND	ND	ND	ND	ND	ND	NI
BBF-SED-57	0-2	8/2/00	ND	1.8	8	ND	ND	0.18	ND	ND	ND	NE
BBF-SED-57	4-6	8/2/00	ND	7.2	9.7	ND	ND	0.22	ND	ND	ND	NE
BBF-SED-57	8-10	8/2/00	2.9	ND	2.1	ND	ND	ND	ND	ND	ND	NE
BBF-SED-58	0-2	8/1/00	ND	23	19	ND	ND	ND	ND	ND	ND	NI

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MUDDY RIVER RESTORATION PROJECT BACK BAY FENS

VOLATILE PETROLEUM HYDROCARBON SEDIMENT SAMPLE ANALYSIS RESULTS (mg/kg)

Sample ID	Sample Depth (ft BGS)	Sample Date	C5-C8 Aliphatic Hydrocarbons	C9-C10 Aromatic Hydrocarbons	C9-C12 Aliphatic Hydrocarbons	Methyl tert-butyl ether	Benzene	Toluene	Ethylbenzene	m,p-Xylene	o-Xylene	Naphthalene
BBF-SED-58	2-4	8/1/00	ND	20	26	ND	ND	MD) TD) T	1,770	
BBF-SED-58	6-8	8/1/00	ND	ND	0.73	ND	ND	ND ND	ND	ND	ND	ND
BBF-SED-58	10-12*	8/1/00	ND	ND	ND	ND			ND	ND	ND	ND
BBF-SED-59	0-2	8/1/00	ND	ND			ND	ND	ND	ND	ND	ND
BBF-SED-59					1.I	ND	ND	ND	ND	ND	ND	ND
	4-6	8/1/00	ND	ND	2.2	ND	ND	ND	ND	ND	ND	ND
BBF-SED-59	8-10	8/1/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
BBF-SED-60	0-2	8/1/00	ND	3.2	9.5	ND	ND	ND	ND	ND	ND	ND
BBF-SED-60	2-4	8/1/00	ND	ND	2.4	ND	ND	ND	ND	ND	ND	ND
BBF-SED-60	8-10	8/1/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

Notes:

--- = Not Analyzed

ND = Not Detected

* Results in table are the average of two duplicate sample results

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MUDDY RIVER RESTORATION PROJECT BACK BAY FENS EXTRACTABLE PETROLEUM HYDROCARBON SEDIMENT SAMPLE ANALYSIS RESULTS (mg/kg)

													(mg/kg)			
Sample ID	Sample Depth (ft BGS)	Sample Date	C11-C22 Aromatic Hydrocarbons	C19-C36 Aliphatic Hydrocarbons	C9-C18 Aliphatic Hydrocarbons	2-Methyl- naphthalene	Acenaphthene	Acenaphthylene	Anthracene	Benzo(a) anthracene	Benzo(a)pyrene	Benzo(b) fluoranthene	Benzo(g,h,i) perylene	Benzo(k) fluoranthene	Chrysene	Dibenz(a,h) anthracene
BBF-SED-01	0-2	10/18/00	ND	330	ND) ID		1								
BBF-SED-02	0-2	7/19/00	64	ND ND	ND	ND ND	ND	ND	ND	1.9	2.2	3.2	1.3	1.1	2.3	ND
BBF-SED-02	6-8	7/19/00	ND	ND	ND	ND ND	0.56	ND	1.3	2.5	2.0	2.7	1.2	1.2	2.4	ND
BBF-SED-02	8-10	7/19/00	ND	ND	1		ND	ND	0.36	0.5	0.49	0.59	ND	ND	0.58	ND
BBF-SED-03	0-2	7/19/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
BBF-SED-03	2-4	7/19/00	ND	ND	ND ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
BBF-SED-04	0-2	7/20/00	ND	180		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
BBF-SED-04	2-4	7/20/00	ND	ND ND	ND	ND	ND	ND	ND	0.82	0.86	1.7	0.33	0.53	0.97	ND
BBF-SED-04	6-8	7/20/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
BBF-SED-05	0-8	7/21/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
BBF-SED-05	2-4	7/21/00	ND		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
BBF-SED-05	8-10	7/21/00	ND	ND ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
BBF-SED-06	0-2	7/25/00	ND	570	ND ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
BBF-SED-06	4-6	7/25/00	ND	230	ND	ND	ND	ND	ND	0.6	0.58	0.8	ND	0.38	0.56	ND
BBF-SED-06	6-8	7/25/00	ND	ND ND	ND ND	ND	ND	ND	ND	ND	ND	0.3	ND	ND	ND	ND
BBF-SED-07	0-3	9/7/00	ND	1)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
BBF-SED-07	2-4	9/7/00	ND	430 610	ND	ND	ND	ND	1.6	3.7	3.5	4.6	2.2	1.7	3.4	ND
BBF-SED-07	6-8	9/7/00	ND	ND	ND	ND	ND	ND	0.92	2.5	2.9	3.9	1.8	1.5	2.9	ND
BBF-SED-08	0-2	9/6/00	ND	250	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
BBF-SED-08	2-4	9/6/00	ND		ND	ND	ND	ND	0.51	1.8	2.5	3.6	1.5	1	1.9	ND
BBF-SED-09	0-2	9/6/00	ND	ND 590	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
BBF-SED-09	2-4	9/6/00	ND	ND	ND	ND	ND	ND	1	3.8	4.2	6.3	2.9	2.1	3.9	ND
BBF-SED-10	0-2	9/6/00	ND	310	ND ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
BBF-SED-10	2-4	9/6/00	ND	ND	ND	ND	ND	ND	ND	1.3	1.7	2.3	1.2	0.88	1.6	ND
BBF-SED-11	0-2	7/26/00	ND	ND	ND ND	ND ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
BBF-SED-11	6-8	7/26/00	ND	ND	ND		ND	ND	ND	0.46	0.44	0.47	0.34	ND	0.6	ND
BBF-SED-11	8-10	7/26/00	ND	ND		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
BBF-SED-12	0-2	9/6/00	ND		ND	ND	ND	ND	ND	ND	ND	0.3	ND	ND	ND	ND
BBF-SED-12	2-4	9/6/00	220	1200 1000	ND	ND	ND	ND	ND	3.1	2.9	4.1	2.5	1.9	2.5	ND
BBF-SED-12	6-8	9/6/00	ND ND	ND	ND	ND	ND	ND	1.3	4.2	5.5	6.8	3	3	5	0.86
BBF-SED-13	0-8	9/6/00	ND		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
BBF-SED-13	2-4	9/6/00	ND	670 230	ND	ND	ND	ND	ND	1.6	1.7	2.4	1.2	0.82	1.7	ND
001-000-13	2-4	3/0/00	ND	230	ND	ND	ND	ND	ND	1.4	1.3	1.9	0.91	0.79	1.3	ND

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MUDDY RIVER RESTORATION PROJECT BACK BAY FENS

EXTRACTABLE PETROLEUM HYDROCARBON SEDIMENT SAMPLE ANALYSIS RESULTS (mg/kg)

Sample ID	Sample Depth (ft BGS)	Sample Date	C11-C22 Aromatic Hydrocarbons	C19-C36 Aliphatic Hydrocarbons	C9-C18 Aliphatic Hydrocarbons	2-Methyl- naphthalene	Acenaphthene	Acenaphthylene	Anthracene	Benzo(a) anthracene	Benzo(a)pyrene	Benzo(b) fluoranthene	Benzo(g,h,i) perylene	Benzo(k) fluoranthene	Chrysene	Dibenz(a,h) anthracene
222 222 10		016100					170) TO	2.772	2770	\TD	ND	ND
BBF-SED-13	4-6	9/6/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
BBF-SED-14	0-2	9/6/00	ND	180	ND	ND	ND	ND	ND	ND	ND	0.82	ND	ND	ND	ND
BBF-SED-14	2-4	9/6/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND		
BBF-SED-15	2-4	7/26/00	ND	ND	ND	ND	ND	ND	0.45	0.72	0.65	0.68	0.4	ND	0.7	ND
BBF-SED-15	4-6	7/26/00	ND	ND	ND	ND	ND	ND	1.2	1.6	1.2	1.6	0.67	0.64	1.4	ND
BBF-SED-15	6-8	7/26/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
BBF-SED-16	0-2	9/6/00	ND	400	ND	ND	ND	ND	ND	0.79	0.87	1.1	ND	ND	ND	ND
BBF-SED-16	2-4	9/6/00	ND	830	ND	ND	ND	ND	ND	2.7	2.6	4.1	1.7	1.3	2.4	ND
BBF-SED-16	4-6	9/6/00	ND	130	ND	ND	ND	ND	ND	1	0.96	1.3	0.65	0.51	0.7	ND
BBF-SED-17	0-2	7/26/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
BBF-SED-17	2-4	7/26/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.32	ND
BBF-SED-17	6-8	7/26/00	2100	ND	ND	30	36	21	97	89	73	92	30	8.7	69	12
BBF-SED-18	0-2	7/27/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
BBF-SED-18	2-4	7/27/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
BBF-SED-18	4-6	7/27/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
BBF-SED-19	0-2	8/15/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
BBF-SED-19	4-6	8/15/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
BBF-SED-19	8-10	8/15/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
BBF-SED-20	0-2	8/14/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
BBF-SED-20	4-6	8/14/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
BBF-SED-21	0-2*	8/14/00	ND	120	ND	ND	ND	ND	ND	0.385	0.38	0.83	0.335	ND	0.715	ND
BBF-SED-21A	2-4	8/14/00	ND	100	ND	ND	0.58	ND	1.1	1.4	1.4	2.2	0.87	0.53	1.4	ND
BBF-SED-21A	6-8	8/14/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
BBF-SED-22	0-2	8/14/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
BBF-SED-22	2-4	8/14/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
BBF-SED-23	0-2	8/15/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
BBF-SED-23	2-4	8/15/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
BBF-SED-23	12-14	8/15/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
BBF-SED-24	0-2	8/11/00	150	250	ND	ND	ND	ND	ND	ND	ND	0.91	ND	ND	0.77	ND
BBF-SED-24	4-6	8/11/00	ND	230	ND	ND	ND	ND	ND	ND	ND	1.2	ND	ND	0.73	ND
BBF-SED-24	6-8*	8/11/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
BBF-SED-25	0-2	8/11/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

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MUDDY RIVER RESTORATION PROJECT BACK BAY FENS EXTRACTABLE PETROLEUM HYDROCARBON SEDIMENT SAMPLE ANALYSIS RESULTS (mg/kg)

			DLE FE							,						
Sample ID	Sample Depth (ft BGS)	Sample Date	C11-C22 Aromatic Hydrocarbons	C19-C36 Aliphatic Hydrocarbons	C9-C18 Aliphatic Hydrocarbons	2-Methyl- naphthalene	Acenaphthene	Acenaphthylene	Anthracene	Benzo(a) anthracene	Benzo(a)pyrene	Benzo(b) fluoranthene	Benzo(g,h,i) perylene	Benzo(k) fluoranthene	Chrysene	Dibenz(a,h) anthracene
BBF-SED-25	2-4	8/11/00	ND	ND	ND	ND	ND	ND	NID.) III	100	, , , ,		100	NTD.	ND
BBF-SED-25	6-8	8/11/00	ND	ND	ND	ND ND	ND	ND	ND ND	ND ND	ND ND	ND ND	ND ND	ND ND	ND ND	ND
BBF-SED-26	0-8	8/11/00	100	200	ND	ND	ND	ND	3.7	3.9	2.5	3.4		1.3	3.6	ND
BBF-SED-26	4-6	8/11/00	ND	ND ND	ND	ND	ND	ND	ND	ND	ND	ND	1.1 ND	ND ND	ND	ND
BBF-SED-26	12-14	8/11/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
BBF-SED-27	0-2	8/11/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
BBF-SED-27	4-6	8/11/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
BBF-SED-27	6-8	8/11/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
BBF-SED-28	0-2	8/9/00	65	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
BBF-SED-28	2-4	8/9/00	ND	ND	ND ND	ND	ND	ND	0.59	ND	ND	ND	ND	0.43	ND	ND
BBF-SED-28	10-12	8/9/00	ND	ND	ND	ND		1	0.00						1	1
BBF-SED-29	0-12	8/9/00	ND	ND	ND		ND	ND	0.3	0.39	0.29	0.49	ND	ND	0.41	ND
BBF-SED-29	4-6					ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
BBF-SED-29	6-8	8/9/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
BBF-SED-30	0-8	8/9/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
BBF-SED-30	2-4	7/27/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
BBF-SED-31	0-2	7/28/00	ND 270	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
BBF-SED-31	4-6			490	64	0.38	1.7	0.32	4.9	11	9.7	14	5.3	3.3	8.9	1.7
BBF-SED-31	10-12	7/28/00	230	650	190	0.5	0.78	ND	1.9	4.3	4.1	5.9	1.9	2.1	4	0.51
BBF-SED-31		7/28/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	0-2	8/9/00	160	380	180	0.5	0.83	ND	1.5	1.2	1	1.8	0.69	0.59	1.2	ND
BBF-SED-32	4-6	8/9/00	160	300	200	0.5 .	0.83	ND	1.7	1.2	0.88	1.7	0.41	0.66	1.3	ND
BBF-SED-32	8-10	8/9/00	88	140	ND	ND	ND	ND	0.67	0.41	ND	0.57	ND	ND	0.45	ND
BBF-SED-33	0-2	7/27/00	ND	150	ND	ND	ND	ND	ND	0.42	0.38	0.56	ND	ND	0.4	ND
BBF-SED-33	2-4	7/27/00	ND	120	ND	ND	ND	ND	ND	0.33	ND	0.4	ND	ND	0.33	ND
BBF-SED-33	6-8	7/27/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
BBF-SED-34	0-2	8/8/00	410	920	130	ND	0.81	ND	2	6.2	6.7	9.7	2.2	2.9	7.5	0.72
BBF-SED-34	4-6	8/8/00	280	590	130	ND	0.7	ND	1.5	3.7	3.8	4.7	1.2	2	4.6	ND
BBF-SED-34	6-8	8/8/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
BBF-SED-35	0-2	8/8/00	340	1200	320	ND	ND	ND	1.1	2.5	2.6	4.1	0.93	1.3	2.9	ND
BBF-SED-35	4-6	8/8/00	ND	190	ND	ND	ND	ND	ND	0.85	0.82	1.1	ND	ND	0.96	ND
BBF-SED-35	8-10	8/8/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
BBF-SED-36	0-2	8/8/00	ND	160	ND	ND	ND	ND	0.63	2.1	2	2.2	0.83	0.99	2.2	ND

MUDDY RIVER RESTORATION PROJECT BACK BAY FENS EXTRACTABLE PETROLEUM HYDROCARBON SEDIMENT SAMPLE ANALYSIS RESULTS (mg/kg)

Sample ID	Sample Depth (ft BGS)	Sample Date	C11-C22 Aromatic Hydrocarbons	C19-C36 Aliphatic Hydrocarbons	C9-C18 Aliphatic Hydrocarbons	2-Methyl- naphthalene	Acenaphthene	Acenaphthylene	Anthracene	Benzo(a) anthracene	Benzo(a)pyrene	Benzo(b) fluoranthene	Benzo(g,h,i) perylene	Benzo(k) fluoranthene	Chrysene	Dibenz(a,h) anthracene
BBF-SED-36	4-6	8/8/00	110	260	ND	ND	ND	ND	1.3	2.6	2.7	3.5	0.94	1.2	2.9	ND
BBF-SED-36	6-8	8/8/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
BBF-SED-37	0-2	7/28/00	190	460	ND	ND	1.1	ND	2.3	5.5	5.6	7.9	2	2.6	5.5	0.57
BBF-SED-37	4-6	7/28/00	410	1200	210	0.73	1.1	0.9	3.7	14	11	17	3.7	4.7	13	1.2
BBF-SED-37	6-8	7/28/00	ND	70	ND	ND	ND	ND	ND	0.39	0.39	0.79	ND	0.72	0.4	ND
BBF-SED-38	0-2	8/7/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND ND	0.72 ND	ND	ND
BBF-SED-38	6-8	8/7/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
BBF-SED-39	0-2	8/7/00	ND	540	170	ND	ND	ND	ND	1	0.98	1.3	0.7	0.56	1.3	ND
BBF-SED-39	4-6	8/7/00	120	360	ND	ND	ND	ND	0.78	1.5	1.7	2.1	1.3	0.36	1.5	ND
BBF-SED-39	8-10	8/7/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
BBF-SED-40	0-2	7/31/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
BBF-SED-40	2-4	7/31/00	ND	76	ND	ND	ND	ND	ND	0.36	0.39	0.52	0.3	ND	0.46	ND
BBF-SED-40	6-8	7/31/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
BBF-SED-41	0-2	8/4/00	ND	ND	ND	ND	ND	ND	ND	0.3	0.32	0.48	0.32	ND	0.4	ND
BBF-SED-41	4-6	8/4/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
BBF-SED-41	6-8	8/4/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
BBF-SED-42	0-2	7/31/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.4	ND	ND	ND	ND
BBF-SED-42	2-4	7/31/00	ND	99	ND	ND	ND	ND	ND	ND	ND	0.4	ND	ND	ND	ND
BBF-SED-42	4-6	7/31/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
BBF-SED-43	0-2	8/1/00	ND	220	ND	ND	1	ND	2.2	2.4	2.1	2.6	1.3	1.1	2.3	ND
BBF-SED-43	4-6	8/1/00	ND	100	ND	ND	ND	ND	ND	0.64	0.6	0.7	0.42	ND	0.67	ND
BBF-SED-43	6-8	8/1/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
BBF-SED-44	0-2	8/4/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
BBF-SED-44	4-6	8/4/00	ND .	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
BBF-SED-44	6-8	8/4/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
BBF-SED-45	0-2	8/1/00	150	930	230	ND	0.63	ND	1.7	4.7	4.6	6.2	2.8	2.3	4.5	0.82
BBF-SED-45	4-6	8/1/00	ND	ND	ND	ND	ND	ND	ND	0.46	0.42	0.48	ND	ND	0.41	ND
BBF-SED-45	6-8	8/1/00	ND	ND	ND	ND	ND	ND	ND	0.51	ND	0.47	ND	ND	0.48	ND
BBF-SED-46	0-2	8/3/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
BBF-SED-46	4-6	8/3/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
BBF-SED-46	6-8	8/3/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
BBF-SED-47	0-2	8/3/00	ND	220	ND	ND	ND	ND	ND	ND	0.84	0.82	ND	ND	0.83	ND

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MUDDY RIVER RESTORATION PROJECT BACK BAY FENS EXTRACTABLE PETROLEUM HYDROCARBON SEDIMENT SAMPLE ANALYSIS RESULTS (mg/kg)

Sample ID	Sample Depth (ft BGS)	Sample Date	C11-C22 Aromatic Hydrocarbons	C19-C36 Aliphatic Hydrocarbons	C9-C18 Aliphatic Hydrocarbons	2-Methyl- naphthalene	Acenaphthene	Acenaphthylene	Anthracene	Benzo(a) anthracene	Benzo(a)pyrene	Benzo(b) fluoranthene	Benzo(g,h,i) perylene	Benzo(k) fluoranthene	Chrysene	Dibenz(a,h)
BBF-SED-47	4-6	8/3/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
BBF-SED-47	6-8	8/3/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NI
BBF-SED-48	0-2	8/1/00	170	1000	180	ND	ND	ND	1.8	5.6	5.4	7.5	3	2.3	5.4	0.5
BBF-SED-48	2-4	8/1/00	ND	180	ND	ND	ND	ND	ND	0.87	0.86	1.1	0.52	0.51	0.87	NI NI
BBF-SED-48	4-6	8/1/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	N
BBF-SED-49	0-2	8/2/00	ND	ND	ND	ND	ND	ND	ND	ND	0.74	0.64	ND	ND		N
BBF-SED-49	4-6	8/2/00	ND	ND	ND I	ND	ND	ND	ND	ND	ND	ND			0.65	1
BBF-SED-49	6-8	8/2/00	130	540	180	ND	ND	ND	0.63	0.84	1.2	1.5	ND 0.92	ND 0.63	ND 1.3	N
BBF-SED-50	0-2	8/2/00	310	590	220	ND	1.2	ND	2.5	6.1	7,3	7.7	4.3	3.2	6.3	L
BBF-SED-50	4-6	8/2/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND ND	N.
BBF-SED-50	6-8	8/2/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	N
BBF-SED-51	0-2	8/2/00	100	430	160	ND	ND	ND	0.91	1.4	1.8	2	1.1	0.91	1.6	N
BBF-SED-51	2-4	8/2/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	N
BBF-SED-51	4-6	8/2/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	N
BBF-SED-52	0-2	8/3/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	N
BBF-SED-52	4-6	8/3/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	N
BBF-SED-52	6-8	8/3/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	N
BBF-SED-53	0-2	8/3/00	ND	ND	ND	ND	ND	ND	0.96	1.2	1.2	1.2	0.59	0.79	1.1	N
BBF-SED-53	4-6	8/3/00	ND	ND	ND	ND	ND	ND	ND	·ND	ND	ND	ND	ND	ND	N
BBF-SED-53	6-8	8/3/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	N
BBF-SED-54	0-2	8/2/00	ND	560	260	ND	ND	ND	1.1	1.7	2	2.2	1.7	1.1	1.9	N
BBF-SED-54	6-8	8/2/00	300	920	270	0.62	0.55	ND	1.7	4.3	5.7	6.5	3.2	2.4	4.5	0.0
BBF-SED-54	8-10	8/2/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	N
BBF-SED-55	0-2	8/2/00	410	1100	420	0.55	0.69	ND	2.2	4.9	5.8	6.3	4	2.7	5.4	1
BBF-SED-55	6-8	8/2/00	220	660	220	ND	ND	ND	1.1	2.1	2.7	3	1.9	1.5	2.9	N
BBF-SED-55	8-10	8/2/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	N
BBF-SED-56	0-2	8/2/00	ND	160	ND	ND	ND	ND	0.8	1	1.2	1.3	0.9	0.64	1.4	N
BBF-SED-56	2-4	8/2/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	N
BBF-SED-57	0-2	8/2/00	290	640	120	ND	1.8	ND	4.8	7	7.9	9	5.2	3.6	8.3	1.
BBF-SED-57	4-6	8/2/00	400	1300	460	ND	0.95	ND	2.7	4.7	5.4	5.9	4.1	2.7	5	0.9
BBF-SED-57	8-10	8/2/00	ND	80	ND	ND	ND	ND	0.39	0.52	0.52	0.55	0.38	0.31	0.47	N
BBF-SED-58	0-2	8/1/00	440	1600	470	ND	ND	ND	1.3	3.7	3.7	5.1	1.5	2.2	3.7	N

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MUDDY RIVER RESTORATION PROJECT BACK BAY FENS

EXTRACTABLE PETROLEUM HYDROCARBON SEDIMENT SAMPLE ANALYSIS RESULTS (mg/kg)

Sample ID	Sample Depth (ft BGS)	Sample Date	C11-C22 Aromatic Hydrocarbons	C19-C36 Aliphatic Hydrocarbons	C18 hatic rocarb	2-Methyl- naphthalene	Acenaphthene	Acenaphthylene	Anthracene	Benzo(a) anthracene	Benzo(a)pyrene	Benzo(b) fluoranthene	Benzo(g,h,i) perylene	Benzo(k) fluoranthene	Chrysene	Dibenz(a,h) anthracene
BBF-SED-58	2-4	8/1/00	480	1600	450	ND	0.76	ND	2.3	4.7	4.8	7	2.2	2.4	4.9	0.62
BBF-SED-58	6-8	8/1/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
BBF-SED-58	10-12*	8/1/00	ND	30	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
BBF-SED-59	0-2	8/1/00	ND	110	ND	ND	0.42	ND	0.79	1.3	1.2	1.8	0.6	0.62	1.2	ND
BBF-SED-59	4-6	8/1/00	140	580	ND	ND	ND	ND	1.1	3.9	4.9	7	2.9	2.2	3.9	0.65
BBF-SED-59	8-10	8/1/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
BBF-SED-60	0-2	8/1/00	180	560	ND	ND	0.7	ND	1.6	5.1	5.4	7.5	2.3	2.7	5.5	0.6
BBF-SED-60	2-4	8/1/00	ND	520	ND	ND	ND	ND	0.85	2.3	2.5	3.9	1.7	1.2	2.2	ND
BBF-SED-60	8-10	8/1/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

Notes:

--- = Not Analyzed

ND = Not Detected

* Results in table are the average of two

duplicate sample results

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MUDDY RIVER RESTORATION PROJECT BACK BAY FENS ${\tt EXTRACTABLE\ PETROLEUM\ HYDROCARBON\ SEDIMENT\ SAMPLE\ ANALYSIS\ RESULTS\ (mg/kg)}$

Sample ID	Sample Depth (ft BGS)	Sample Date	Fluoranthene	Fluorene	Indeno(1,2,3- cd)pyrene	Naphthalene	Phenanthrene	Pyrene
BBF-SED-01	0-2	10/18/00	4.3	ND	1.5	ND	1.3	3.9
BBF-SED-02	0-2	7/19/00	5.8	0.56	1.3	0.55	5.2	4.5
BBF-SED-02	6-8	7/19/00	1.3	ND	ND	ND	1	1
BBF-SED-02	8-10	7/19/00	0.43	ND	ND	ND	ND	0.37
BBF-SED-02	0-2	7/19/00	ND	ND	ND	ND	ND	ND
BBF-SED-03	2-4	7/19/00	ND	ND	ND	ND	ND	ND
BBF-SED-04	0-2	7/20/00	1.7	ND	0.46	ND	ND	1.5
BBF-SED-04	2-4	7/20/00	0.48	ND	ND ND	ND	ND	0.43
BBF-SED-04	6-8	7/20/00	ND	ND	ND	ND	ND	ND
BBF-SED-05	0-2	7/21/00	0.4	ND	ND	ND	ND	0.38
BBF-SED-05	2-4	7/21/00	ND	ND	ND	ND	ND	ND
BBF-SED-05	8-10	7/21/00	ND	ND	ND	ND	ND	ND
BBF-SED-06	0-2	7/25/00	1.4	ND	0.38	ND	1	1.2
BBF-SED-06	4-6	7/25/00	0.58	ND	ND	ND	0.36	0.52
BBF-SED-06	6-8	7/25/00	0.43	ND	ND	ND	0.43	ND
BBF-SED-07	0-2	9/7/00	8.0	ND	1.9	ND	6.1	7.1
BBF-SED-07	2-4	9/7/00	5.7	ND	1.7	ND	3.3	5.3
BBF-SED-07	6-8	9/7/00	ND	ND	ND	ND	ND	ND
BBF-SED-08	0-2	9/6/00	3.7	ND	1.6	ND	1.7	3.2
BBF-SED-08	2-4	9/6/00	ND	ND	ND	ND	ND	ND
BBF-SED-09	0-2	9/6/00	7.8	ND	2.6	ND	4	7.4
BBF-SED-09	2-4	9/6/00	ND	ND	ND	ND	ND	ND
BBF-SED-10	0-2	9/6/00	3.3	ND	0.88	ND	1.9	3.1
BBF-SED-10	2-4	9/6/00	ND	ND	ND	ND	ND	ND
BBF-SED-11	0-2	7/26/00	1.2	ND	ND	ND	1	1.5
BBF-SED-11	6-8	7/26/00	ND	ND	ND	ND	ND	ND
BBF-SED-11	8-10	7/26/00	0.63	ND	ND	ND	0.34	0.56
BBF-SED-12	0-2	9/6/00	5.6	ND	2	ND	2.9	5.4
BBF-SED-12	2-4	9/6/00	9	0.86	2.9	ND	5	8.6
BBF-SED-12	6-8	9/6/00	ND	ND	ND	ND	ND	ND
BBF-SED-13	0-2	9/6/00	3.3	ND	0.9	ND	1.8	3.5
BBF-SED-13	2-4	9/6/00	3	ND	0.73	ND	1.5	2.7

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MUDDY RIVER RESTORATION PROJECT BACK BAY FENS EXTRACTABLE PETROLEUM HYDROCARBON SEDIMENT SAMPLE ANALYSIS RESULTS (mg/kg)

Sample ID	Sample Depth (ft BGS)	Sample Date	Fluoranthene	Fluorene	Indeno(1,2,3-cd)pyrene	Naphthalene	Phenanthrene	Pyrene
BBF-SED-13	4-6	9/6/00	ND	ND	ND	ND	ND	ND
BBF-SED-14	0-2	9/6/00	1.3	ND	ND	ND	ND	1.3
BBF-SED-14	2-4	9/6/00	0.68	ND	ND	ND	ND	0.68
BBF-SED-15	2-4	7/26/00	2	ND	0.39	ND	2.3	1.8
BBF-SED-15	4-6	7/26/00	4.3	ND	0.75	ND	4.1	3.4
BBF-SED-15	6-8	7/26/00	ND	ND	ND	ND	ND	ND
BBF-SED-16	0-2	9/6/00	1.6	ND	ND	ND	0.83	1.7
BBF-SED-16	2-4	9/6/00	5.4	ND	1.7	ND	2.3	5.3
BBF-SED-16	4-6	9/6/00	1.9	ND	0.56	ND	0.65	1.9
BBF-SED-17	0-2	7/26/00	ND	ND	ND	ND	ND	ND
BBF-SED-17	2-4	7/26/00	0.92	ND	ND	ND	1	0.74
BBF-SED-17	6-8	7/26/00	250	57	45	60	340	200
BBF-SED-18	0-2	7/27/00	ND	ND	ND	ND	ND	ND
BBF-SED-18	2-4	7/27/00	ND	ND	ND	ND	ND	ND
BBF-SED-18	4-6	7/27/00	ND	ND	ND	ND	ND	ND
BBF-SED-19	0-2	8/15/00	0.36	ND	ND	ND	ND	15
BBF-SED-19	4-6	8/15/00	ND	ND	ND	ND	ND	ND
BBF-SED-19	8-10	8/15/00	ND	ND	ND	ND	ND	ND
BBF-SED-20	0-2	8/14/00	0.82	ND	ND	ND	ND	ND
BBF-SED-20	4-6	8/14/00	ND	ND	ND	ND	ND	ND
BBF-SED-21	0-2*	8/14/00	1.6	ND	ND	ND	1.1	1.4
BBF-SED-21A	2-4	8/14/00	4	0.66	0.83	0.38	4	3.3
BBF-SED-21A	6-8	8/14/00	ND	ND	ND	ND	ND	ND
BBF-SED-22	0-2	8/14/00	ND	ND	ND	ND	ND	ND
BBF-SED-22	2-4	8/14/00	ND	ND	ND	ND	ND	ND
BBF-SED-23	0-2	8/15/00	0.68	ND	ND	ND	ND	ND
BBF-SED-23	2-4	8/15/00	ND	ND	ND	ND	ND	ND
BBF-SED-23	12-14	8/15/00	ND	ND	ND	ND	ND	ND
BBF-SED-24	0-2	8/11/00	4.5	ND	ND	ND	2.7	2.7
BBF-SED-24	4-6	8/11/00	5.2	ND	ND	ND	2.3	2.9
BBF-SED-24	6-8*	8/11/00	ND	ND	ND	ND	ND	ND
BBF-SED-25	0-2	8/11/00	ND	ND	ND	ND	ND	ND

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MUDDY RIVER RESTORATION PROJECT BACK BAY FENS EXTRACTABLE PETROLEUM HYDROCARBON SEDIMENT SAMPLE ANALYSIS RESULTS (mg/kg)

Sample ID	Sample Depth (ft BGS)	Sample Date	Fluoranthene	Fluorene	Indeno(1,2,3- cd)pyrene	Naphthalene	Phenanthrene	Pyrene
BBF-SED-25	2-4	0/13/00						
BBF-SED-25	6-8	8/11/00	ND	ND	ND	ND	ND	ND
BBF-SED-26	0-8	8/11/00	ND	ND	ND	ND	ND	ND
BBF-SED-26		8/11/00	20	0.8	1.4	ND	8.8	16
	4-6	8/11/00	1.2	ND	ND	ND	0.7	0.88
BBF-SED-26 BBF-SED-27	12-14	8/11/00	0.92	ND	ND	ND	0.65	0.82
	0-2	8/11/00	ND	ND	ND	ND	ND	ND
BBF-SED-27	4-6	8/11/00	ND	ND	ND	ND	ND	ND
BBF-SED-27	6-8	8/11/00	ND	ND	ND	ND	ND	ND
BBF-SED-28	0-2	8/9/00	1.2	ND	ND	ND	0.66	0.99
BBF-SED-28	2-4	8/9/00	2.5	ND	ND	ND	1.9	1.9
BBF-SED-28	10-12	8/9/00	1	ND	ND	ND	0.91	0.99
BBF-SED-29	0-2	8/9/00	0.87	ND	ND	ND	0.46	0.71
BBF-SED-29	4-6	8/9/00	1.1	ND	ND	ND	0.67	1.1
BBF-SED-29	6-8	8/9/00	ND	ND	ND	ND	ND	ND
BBF-SED-30	0-2	7/27/00	ND	ND	ND	ND	ND	ND
BBF-SED-30	2-4	7/27/00	ND	ND	ND	ND	ND	ND
BBF-SED-31	0-2	7/28/00	27	1.8	6.2	0.76	20	21
BBF-SED-31	4-6	7/28/00	10	0.73	2.2	ND	8.5	9.3
BBF-SED-31	10-12	7/28/00	ND	ND	ND	ND	ND	ND
BBF-SED-32	0-2	8/9/00	9.6	1.1	0.69	0.55	6.6	4.6
BBF-SED-32	4-6	8/9/00	14	1.1	0.56	0.4	9.2	7.6
BBF-SED-32	8-10	8/9/00	4.7	0.4	ND	ND	3.1	2.6
BBF-SED-33	0-2	7/27/00	1.1	ND	ND	ND	0.6	0.98
BBF-SED-33	2-4	7/27/00	0.74	ND	ND	ND	0.35	0.67
BBF-SED-33	6-8	7/27/00	ND	ND	ND	ND	ND	ND
BBF-SED-34	0-2	8/8/00	15	0.9	2.3	ND	13	14
BBF-SED-34	4-6	8/8/00	9.1	0.79	1.3	ND	7	8
BBF-SED-34	6-8	8/8/00	ND	ND	ND	ND	ND	ND
BBF-SED-35	0-2	8/8/00	6.2	ND	1.1	ND	4.1	5.6
BBF-SED-35	4-6	8/8/00	2	ND	ND	ND	1.3	2
BBF-SED-35	8-10	8/8/00	ND	ND	ND	ND	ND	ND
BBF-SED-36	0-2	8/8/00	4.6	ND	0.75	ND	3.5	4.2

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MUDDY RIVER RESTORATION PROJECT BACK BAY FENS

EXTRACTABLE PETROLEUM HYDROCARBON SEDIMENT SAMPLE ANALYSIS RESULTS (mg/kg)

Sample ID	Sample Depth (ft BGS)	Sample Date	Fluoranthene	Fluorene	Indeno(1,2,3- cd)pyrene	Naphthalene	Phenanthrene	Pyrene
NAME AND AC								
BBF-SED-36	4-6	8/8/00	6.3	0.51	1.1	ND	4.6	5.4
BBF-SED-36	6-8	8/8/00	ND	ND	ND	ND	ND	ND
BBF-SED-37	0-2	7/28/00	14	0.92	2.5	ND	10	12
BBF-SED-37	4-6	7/28/00	28	1.3	4.6	0.95	13	26
BBF-SED-37	6-8	7/28/00	0.99	ND	ND	ND	0.52	0.86
BBF-SED-38	0-2	8/7/00	ND	ND	ND	ND	ND	ND
BBF-SED-38	6-8	8/7/00	ND	ND	ND	ND	ND	ND
BBF-SED-39	0-2	8/7/00	2.6	ND	0.7	ND	1.9	2.2
BBF-SED-39	4-6	8/7/00	3.8	ND	1	ND	2.4	3.3
BBF-SED-39	8-10	8/7/00	ND	ND	ND	ND	ND	ND
BBF-SED-40	0-2	7/31/00	ND	ND	ND	ND	ND	ND
BBF-SED-40	2-4	7/31/00	1	ND	ND	ND	0.66	0.88
BBF-SED-40	6-8	7/31/00	0.68	ND	ND	ND	0.39	0.58
BBF-SED-41	0-2	8/4/00	0.7	ND	0.3	ND	ND	0.64
BBF-SED-41	4-6	8/4/00	ND	ND	ND	ND	ND	ND
BBF-SED-41	6-8	8/4/00	ND	ND	ND	ND	ND	ND
BBF-SED-42	0-2	7/31/00	0.69	ND	ND	ND	ND	0.63
BBF-SED-42	2-4	7/31/00	0.59	ND	ND	ND	ND	0.57
BBF-SED-42	4-6	7/31/00	ND	ND	ND	ND	ND	ND
BBF-SED-43	0-2	8/1/00	6.3	0.99	1.3	0.92	6.4	5.6
BBF-SED-43	4-6	8/1/00	1.6	ND	ND	ND	0.94	1.5
BBF-SED-43	6-8	8/1/00	ND	ND	ND	ND	ND	ND
BBF-SED-44	0-2	8/4/00	0.67	ND	ND	ND	ND	0.62
BBF-SED-44	4-6	8/4/00	ND	ND	ND	ND	ND	ND
BBF-SED-44	6-8	8/4/00	ND	ND	ND	ND	ND	ND
BBF-SED-45	0-2	8/1/00	10	0.61	3.1	ND	5.4	9.8
BBF-SED-45	4-6	8/1/00	0.8	ND	ND	ND	ND	0.7
BBF-SED-45	6-8	8/1/00	- 0.83	ND	ND	ND	ND	0.75
BBF-SED-46	0-2	8/3/00	ND	ND	ND	ND	ND	ND
BBF-SED-46	4-6	8/3/00	ND	ND	ND	ND	ND	ND
BBF-SED-46	6-8	8/3/00	ND	ND	ND	ND	ND	ND
BBF-SED-47	0-2	8/3/00	1.6	ND	ND	ND	1.2	1.5

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MUDDY RIVER RESTORATION PROJECT BACK BAY FENS EXTRACTABLE PETROLEUM HYDROCARBON SEDIMENT SAMPLE ANALYSIS RESULTS (mg/kg)

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	Sample ID	Sample Depth (ft BGS)	Sample Date	Fluoranthene	Fluorene	Indeno(1,2,3- cd)pyrene	Naphthalene	Phenanthrene	Pyrene
	DDE GED 46								
	BBF-SED-47	4-6	8/3/00	ND	ND	ND	ND	ND	ND
	BBF-SED-47	6-8	8/3/00	ND	ND	ND	ND	ND	ND
-	BBF-SED-48	0-2	8/1/00	12	0.72	3.5	ND	7.1	12
	BBF-SED-48	2-4	8/1/00	2	ND	0.61	ND	0.99	1.8
	BBF-SED-48	4-6	8/1/00	ND	ND	ND	ND	ND	ND
	BBF-SED-49	0-2	8/2/00	1.5	ND	ND	ND	0.67	1.4
	BBF-SED-49	4-6	8/2/00	0.82	ND	ND	ND	ND	0.8
ı	BBF-SED-49	6-8	8/2/00	2.7	ND	0.89	ND	1.3	2.4
- {	BBF-SED-50	0-2	8/2/00	16	1	4.3	ND	7.8	14
1	BBF-SED-50	4-6	8/2/00	ND	ND	ND	ND	ND	ND
-	BBF-SED-50	6-8	8/2/00	ND	ND	ND	ND	ND	ND
-1	BBF-SED-51	0-2	8/2/00	3.7	ND	1.2	ND	1.4	3.6
	BBF-SED-51	2-4	8/2/00	ND	ND	ND	ND	ND	ND
1	BBF-SED-51	4-6	8/2/00	ND	ND	ND	ND	ND	ND
1	BBF-SED-52	0-2	8/3/00	0.59	ND	ND	ND	ND	0.57
-	BBF-SED-52	4-6	8/3/00	ND	ND	ND	ND	ND	ND
1	BBF-SED-52	6-8	8/3/00	ND	ND	ND	ND	ND	ND
1	BBF-SED-53	0-2	8/3/00	3.2	ND	0.66	ND	2.6	2.5
1	BBF-SED-53	4-6	8/3/00	ND	ND	ND	ND	ND	ND
-	BBF-SED-53	6-8	8/3/00	ND	ND	ND	ND	ND	ND
1	BBF-SED-54	0-2	8/2/00	5	ND	1.4	ND	2.6	4.7
1	BBF-SED-54	6-8	8/2/00	11	0.71	3.4	0.58	4.1	9.6
1	BBF-SED-54	8-10	8/2/00	ND	ND	ND	ND	ND	ND
	BBF-SED-55	0-2	8/2/00	13	0.91	3.9	0.53	6.7	12
	BBF-SED-55	6-8	8/2/00	6.2	ND	1.9	ND	2.8	5.8
	BBF-SED-55	8-10	8/2/00	ND	ND	ND	ND	ND	ND
	BBF-SED-56	0-2	8/2/00	3	ND	0.84	ND	2.1	2.7
	BBF-SED-56	2-4	8/2/00	ND	ND	ND	ND	ND	ND
	BBF-SED-57	0-2	8/2/00	21	1.4	4.9	0.71	16	19
	BBF-SED-57	4-6	8/2/00	12	0.97	3.6	ND	6.9	11
	BBF-SED-57	8-10	8/2/00	1.4	ND	0.38	ND	0.94	1.2
L	BBF-SED-58	0-2	8/1/00	8.8	0.71	1.8	ND	5.6	7.7

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MUDDY RIVER RESTORATION PROJECT

BACK BAY FENS EXTRACTABLE PETROLEUM HYDROCARBON SEDIMENT SAMPLE ANALYSIS RESULTS (mg/kg)

Sample ID	Sample Depth (ft BGS)	Sample Date	Fluoranthene	Fluorene	Indeno(1,2,3-cd)pyrene	Naphthalene	Phenanthrene	Pyrene
BBF-SED-58	2-4	8/1/00	11	0.79	2.5	ND	7.1	10
BBF-SED-58	6-8	8/1/00	ND	ND	ND	ND	ND	ND
BBF-SED-58	10-12*	8/1/00	ND	ND	ND	ND	ND	ND
BBF-SED-59	0-2	8/1/00	4	ND :	0.64	ND	3.8	3.1
BBF-SED-59	4-6	8/1/00	6.5	ND	3.3	ND	1.4	6.1
BBF-SED-59	8-10	8/1/00	ND	ND	ND	ND	ND	ND
BBF-SED-60	0-2	8/1/00	10	0.92	2.8	ND	6.8	9.9
BBF-SED-60	2-4	8/1/00	4.9	ND	1.8	ND	2	4.6
BBF-SED-60	8-10	8/1/00	ND	ND	ND	ND	ND	ND

--- = Not Analyzed
ND = Not Detected
* Results in table are the average of two

duplicate sample results

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MUDDY RIVER RESTORATION PROJECT BACK BAY FENS PCB SEDIMENT SAMPLE ANALYSIS RESULTS (mg/kg)

	Sample								
	Depth	Sample	Aroclor	Aroclor	Aroclor	Aroclor	Aroclor	Aroclor	Aroclor
Sample ID	(ft BGS)	Date	1016	1221	1232	1242	1248	1254	1260
									1000
BBF-SED-01	0-2	10/18/00	ND	ND	ND	ND	ND	ND	0.070
BBF-SED-02	0-2	7/19/00	ND	ND	ND	ND	ND	ND	ND
BBF-SED-02	6-8	7/19/00	ND	ND	ND	ND	ND	ND	ND
BBF-SED-02	8-10	7/19/00	ND	ND	ND	ND	ND	ND	ND
BBF-SED-03	0-2	7/19/00			***	-			
BBF-SED-03	2-4	7/19/00	ND	ND	ND	ND	ND	ND	ND
BBF-SED-04	0-2	7/20/00	ND	ND	ND	ND	ND	ND	ND
BBF-SED-04	2-4	7/20/00	ND	ND	ND	ND	ND	ND	ND
BBF-SED-04	6-8	7/20/00	ND	ND	ND	ND	ND	ND	ND
BBF-SED-05	0-2	7/21/00	ND	ND	ND	ND	ND	ND	ND
BBF-SED-05	2-4	7/21/00	ND	ND	ND	ND	ND	ND .	ND
BBF-SED-05	8-10	7/21/00	ND	ND	ND	ND	ND	ND	ND
BBF-SED-06	0-2	7/25/00	D-00-0				and the same of th		
BBF-SED-06	4-6	7/25/00	ND	ND	ND	ND	ND	ND	ND
BBF-SED-06	6-8	7/25/00	ND	ND	ND	ND	ND	ND	ND
BBF-SED-07	0-2	9/7/00	ND	ND	ND	ND	ND	ND	ND
BBF-SED-07	2-4	9/7/00	ND	ND	ND	ND	ND	ND	ND
BBF-SED-07	6-8	9/7/00	ND	ND	ND	ND	ND	ND	ND
BBF-SED-08	0-2	9/6/00	ND	ND	ND	ND	ND	ND	ND
BBF-SED-08	2-4	9/6/00	****			man .			
BBF-SED-09	0-2	9/6/00	ND	ND	ND	ND	ND	ND	ND
BBF-SED-09	2-4	9/6/00	ND	ND	ND	ND	ND	ND	ND
BBF-SED-10	0-2	9/6/00	ND	ND	ND	ND	ND	ND	ND
BBF-SED-10	2-4	9/6/00	ND	ND	ND	ND	ND	ND	ND
BBF-SED-11	0-2	7/26/00	-				_		
BBF-SED-11	6-8	7/26/00	ND	ND	ND	ND	ND	ND	ND
BBF-SED-11	8-10	7/26/00	ND	ND	ND	ND	ND	ND	ND
BBF-SED-12	0-2	9/6/00	ND	ND	ND	ND	ND	ND	ND
BBF-SED-12	2-4	9/6/00	ND	ND	ND	ND	ND	ND	ND
BBF-SED-12	6-8	9/6/00	ND	ND	ND	ND	ND	ND	ND
BBF-SED-13	0-2	9/6/00	ND	ND	ND	ND	ND	ND	ND
BBF-SED-13	2-4	9/6/00	ND	ND	ND	ND	ND	ND	ND
BBF-SED-13	4-6	9/6/00	ND	ND	ND	ND	ND	ND	ND
BBF-SED-14	0-2	9/6/00	ND	ND	ND	ND	ND	ND	ND
BBF-SED-14	2-4	9/6/00	ND	ND	ND	ND	ND	ND	ND

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	Sample								
	Depth	Sample	Aroclor	Aroclor	Aroclor	Aroclor	Aroclor	Aroclor	Aroclor
Sample ID	(ft BGS)	Date	1016	1221	1232	1242	1248	1254	1260
BBF-SED-15	2-4	7/26/00		gmisson .	terms	mento		-	_
BBF-SED-15	4-6	7/26/00	ND	ND	ND	ND	ND	ND	ND
BBF-SED-15	6-8	7/26/00	ND	ND	ND	ND	ND	ND	ND
BBF-SED-16	0-2	9/6/00	ND	ND	ND	ND	ND	ND	ND
BBF-SED-16	2-4	9/6/00	ND	ND	ND	ND	ND	ND	ND
BBF-SED-16	4-6	9/6/00	ND	ND	ND	ND	ND	ND	ND
BBF-SED-17	0-2	7/26/00	ND	ND	ND	ND	ND	ND	ND
BBF-SED-17	2-4	7/26/00	ND	ND	ND	ND	ND	ND	ND
BBF-SED-17	6-8	7/26/00	ND	ND	ND	ND	ND	ND	ND
BBF-SED-18	0-2	7/27/00	ND	ND	ND	ND	ND	ND	ND
BBF-SED-18	2-4	7/27/00	ND	ND	ND	ND	ND	ND	ND
BBF-SED-18	4-6	7/27/00	ND	ND	ND	ND	ND	ND	ND
BBF-SED-19	0-2	8/15/00	ND	ND	ND	ND	ND	0.15	0.051
BBF-SED-19	4-6	8/15/00	ND	ND	ND	ND	ND	ND	ND
BBF-SED-19	8-10	8/15/00				'			
BBF-SED-20	0-2	8/14/00	ND	ND	ND	ND	ND	2,1	0.74
BBF-SED-20	4-6	8/14/00	ND	ND	ND	ND	ND	ND	ND
BBF-SED-21	0-2	8/14/00	ND	ND	ND	ND	ND	0.245	0.13
BBF-SED-21A	2-4	8/14/00							
BBF-SED-21A	6-8	8/14/00	ND	ND	ND	ND	ND	ND	ND
BBF-SED-22	0-2	8/14/00	ND	ND	ND	ND	ND	0.099	ND
BBF-SED-22	2-4	8/14/00	ND	ND	ND	ND	ND	ND	ND
BBF-SED-23	0-2	8/15/00	ND	ND	ND	ND	ND	0.3	0.12
BBF-SED-23	2-4	8/15/00	ND	ND	ND	ND	ND	ND	ND
BBF-SED-23	12-14	8/15/00	ND	ND	ND	ND	ND	ND	ND
BBF-SED-24	0-2	8/11/00	ND	ND	ND	ND	ND	1.1	0.57
BBF-SED-24	4-6	8/11/00	ND	ND	ND	ND	ND	0.18	0.086
BBF-SED-24	6-8	8/11/00	ND	ND	ND	ND	ND	ND	ND
BBF-SED-25	0-2	8/11/00	ND	ND	ND	ND	ND	1.4	0.51
BBF-SED-25	2-4	8/11/00	ND	ND	ND	ND	ND	1.5	0.51
BBF-SED-25	6-8	8/11/00	ND	ND	ND	ND	ND	ND	ND
BBF-SED-26	0-2	8/11/00	ND	ND	ND	ND	ND	ND	ND
BBF-SED-26	4-6	8/11/00	ND	ND	ND	ND	ND	ND	ND
BBF-SED-26	12-14	8/11/00	ND	ND	ND	ND	ND	ND	ND
BBF-SED-27	0-2	8/11/00	ND	ND	ND	ND	ND	3.6	1.3

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MUDDY RIVER RESTORATION PROJECT BACK BAY FENS PCB SEDIMENT SAMPLE ANALYSIS RESULTS (mg/kg)

		DIVIENT							
	Sample								
	Depth	Sample	Aroclor	Aroclor	Aroclor	Aroclor	Aroclor	Aroclor	Aroclo
Sample ID	(ft BGS)	Date	1016	1221	1232	1242	1248	1254	1260
BBF-SED-27	4-6	8/11/00	ND	ND	ND	ND	ND	0.93	0.4
BBF-SED-27	6-8	8/11/00	ND	ND	ND	ND	ND	0.098	ND
BBF-SED-28	0-2	8/9/00	ND	ND	ND	ND	ND	0.14	0.067
BBF-SED-28	2-4	8/9/00	ND	ND	ND	ND	ND	0.11	0.053
BBF-SED-28	10-12	8/9/00	ND	ND	ND	ND	ND	0.042	ND
BBF-SED-29	0-2	8/9/00	ND	ND	ND	ND	ND	0.062	ND
BBF-SED-29	4-6	8/9/00	ND						
BBF-SED-29	6-8	8/9/00	ND						
BBF-SED-30	0-2	7/27/00	ND						
BBF-SED-30	2-4	7/27/00	ND						
BBF-SED-31	0-2	7/28/00	ND	ND	ND	ND	ND	0.16	0.077
BBF-SED-31	4-6	7/28/00	ND	ND	ND	ND	ND	3.7	1.3
BBF-SED-31	10-12	7/28/00	ND						
BBF-SED-32	0-2	8/9/00	ND	ND	ND	ND	ND	0.65	0.33
BBF-SED-32	4-6	8/9/00	ND	ND	ND	ND	ND	4	ND
BBF-SED-32	8-10	8/9/00	ND	ND	ND	ND	ND	0.17	0.078
BBF-SED-33	0-2	7/27/00	ND	ND	ND	ND	ND	0.37	0.19
BBF-SED-33	2-4	7/27/00	ND	ND	ND	ND	ND	0.079	0.039
BBF-SED-33	6-8	7/27/00	ND						
BBF-SED-34	0-2	8/8/00	ND	ND	ND	ND	ND	1.5	0.53
BBF-SED-34	4-6	8/8/00	ND	ND	ND	ND	0.6	0.35	0.2
BBF-SED-34	6-8	8/8/00	ND						
BBF-SED-35	0-2	8/8/00	ND	ND	ND	ND	2.3	1.3	0.55
BBF-SED-35	4-6	8/8/00	ND	ND	ND	ND	ND	0.1	ND
BBF-SED-35	8-10	8/8/00	ND	ND	ND	ND	ND	0.042	ND
BBF-SED-36	0-2	8/8/00	ND	ND	ND	ND	ND	0.67	0.25
BBF-SED-36	4-6	8/8/00	ND						
BBF-SED-36	6-8	8/8/00	ND						
BBF-SED-37	0-2	7/28/00	ND	ND	ND	ND	ND	0.65	0.39
BBF-SED-37	4-6	7/28/00	ND	ND	ND	ND	ND	0.55	0.24
BBF-SED-37	6-8	7/28/00	ND						
BBF-SED-38	0-2	8/7/00	ND	ND .	ND	ND	ND	ND	ND
BBF-SED-38	6-8	8/7/00	ND	ND -	ND	ND	ND	ND	ND
BBF-SED-39	0-2	8/7/00	ND	ND	ND	ND	ND	4.7	1.4
BBF-SED-39	4-6	8/7/00	ND	ND	ND	ND	ND	1.1	0.36

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	Sample							,	
	Depth	Sample	Aroclor	Aroclor	Aroclor	Aroclor	Aroclor	Arocior	Aroclor
Sample ID	(ft BGS)	Date	1016	1221	1232	1242	1248	1254	1260
	(2.200)		1010	1221	1232	1242	1240	1234	1200
BBF-SED-39	8-10	8/7/00	ND	ND	ND	ND	ND	0.089	ND
BBF-SED-40	0-2	7/31/00	ND	ND	ND	ND	ND	0.02	ND
BBF-SED-40	2-4	7/31/00	ND	ND	ND	ND	ND	0.046	0.022
BBF-SED-40	6-8	7/31/00	ND	ND	ND	ND	ND	0.023	ND
BBF-SED-41	0-2	8/4/00	ND						
BBF-SED-41	4-6	8/4/00	ND						
BBF-SED-41	6-8	8/4/00	ND						
BBF-SED-42	0-2	7/31/00	ND	ND	ND	ND	ND	0.11	0.054
BBF-SED-42	2-4	7/31/00	ND	ND	ND	ND	ND	0.032	0.019
BBF-SED-42	4-6	7/31/00	ND						
BBF-SED-43	0-2	8/1/00	ND	ND	ND	ND	ND	0.29	0.14
BBF-SED-43	4-6	8/1/00	ND						
BBF-SED-43	6-8	8/1/00	ND						
BBF-SED-44	0-2	8/4/00	ND						
BBF-SED-44	4-6	8/4/00	ND						
BBF-SED-44	6-8	8/4/00	ND						
BBF-SED-45	0-2	8/1/00	ND	ND	ND	ND	ND	1.1	0.52
BBF-SED-45	4-6	8/1/00	ND						
BBF-SED-45	6-8	8/1/00	ND						
BBF-SED-46	0-2	8/3/00	ND	ND	ND	ND	ND	0.39	0.16
BBF-SED-46	4-6	8/3/00	ND	ND	ND	ND	ND	0.077	ND
BBF-SED-46	6-8	8/3/00	ND						
BBF-SED-47	0-2	8/3/00	ND	ND	ND	ND	ND	2.2	0.85
BBF-SED-47	4-6	8/3/00	ND	ND	ND	ND	ND	0.086	ND
BBF-SED-47	6-8	8/3/00	ND						
BBF-SED-48	0-2	8/1/00	ND	ND	ND	ND	ND	0.058	ND
BBF-SED-48	2-4	8/1/00	ND						
BBF-SED-48	4-6	8/1/00	ND						
BBF-SED-49	0-2	8/2/00	ND	ND	ND	ND	ND	4.4	1.1
BBF-SED-49	4-6	8/2/00	ND	ND	ND	ND	ND	0.33	0.13
BBF-SED-49	6-8	8/2/00	ND						
BBF-SED-50	0-2	8/2/00	ND	ND	ND	ND	ND	6.1	1.5
BBF-SED-50	4-6	8/2/00	ND	ND	ND	ND	ND	0.79	0.26
BBF-SED-50	6-8	8/2/00	ND						
BBF-SED-51	0-2	8/2/00	ND	ND	ND	ND	ND	0.44	0.23

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MUDDY RIVER RESTORATION PROJECT BACK BAY FENS PCB SEDIMENT SAMPLE ANALYSIS RESULTS (mg/kg)

	Sample		1						
	Depth	Sample	Aroclor						
Sample ID	(ft BGS)	Date	1016	1221	1232	1242	1248	1254	1260
					1002	1212	1240	1254	1200
BBF-SED-51	2-4	8/2/00	ND						
BBF-SED-51	4-6	8/2/00	ND						
BBF-SED-52	0-2	8/3/00	ND	ND	ND	ND	ND	0.057	ND
BBF-SED-52	4-6	8/3/00	ND	ND	ND	ND	ND	0.3	0.15
BBF-SED-52	6-8	8/3/00	ND						
BBF-SED-53	0-2	8/3/00	ND	ND	ND	ND	ND	2.3 .	0.9
BBF-SED-53	4-6	8/3/00	ND	ND	ND	ND	ND	0.062	ND
BBF-SED-53	6-8	8/3/00	ND						
BBF-SED-54	0-2	8/2/00	ND	ND	ND	ND	ND	4.4	1.2
BBF-SED-54	6-8	8/2/00	ND	ND	ND	ND	ND	0.39	0.17
BBF-SED-54	8-10	8/2/00	ND						
BBF-SED-55	0-2	8/2/00	ND	ND	ND	ND	ND	1.8	0.7
BBF-SED-55	6-8	8/2/00	ND	ND	ND	ND	ND	0.84	0.44
BBF-SED-55	8-10	8/2/00	ND						
BBF-SED-56	0-2	8/2/00	ND						
BBF-SED-56	2-4	8/2/00	ND	ND	ND	ND	ND	0.037	ND
BBF-SED-57	0-2	8/2/00	ND						
BBF-SED-57	4-6	8/2/00	ND	ND	ND	ND	ND	0.97	0.46
BBF-SED-57	8-10	8/2/00	ND	ND	ND	ND	ND	0.18	0.063
BBF-SED-58	0-2	8/1/00	ND	ND	ND	ND	ND	5.3	1.7
BBF-SED-58	2-4	8/1/00	ND	ND	ND	ND	ND	1.8	0.94
BBF-SED-58	6-8	8/1/00	ND	ND	ND	ND '	ND	ND	ND
BBF-SED-58	10-12	8/1/00	ND	ND	ND	ND	ND	0.115	0.05
BBF-SED-59	0-2	8/1/00	ND	ND	ND	ND	ND	0.26	0.076
BBF-SED-59	4-6	8/1/00	ND	ND	ND	ND	ND	0.21	0.091
BBF-SED-59	8-10	8/1/00	ND						
BBF-SED-60	0-2	8/1/00	ND	ND	ND	ND	ND	0.097	0.098
BBF-SED-60	2-4	8/1/00	ND	ND	ND	ND	ND	0.14	0.13
BBF-SED-60	8-10	8/1/00	ND						

Notes

-- = Not Analyzed

ND = Not Detected

	Sample													Endo-
	Depth	Sample					Alpha-	alpha-				Endo-	Endo-	sulfan
Sample ID	(ft BGS)	Date	4,4'-DDD	4,4'-DDE	4,4'-DDT	Aldrin	chlordane	BHC	beta-BHC	delta-BHC	Dieldrin		sulfan II	sulfate
DDE CED 01	0.0	10/10/00												
BBF-SED-01	0-2	10/18/00	0.290	0.042	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
BBF-SED-02	0-2	7/19/00	0.014	0.011	0.017	ND	ND	ND	ND	ND	ND	ND	ND	ND
BBF-SED-02	6-8	7/19/00	ND	0.0049	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
BBF-SED-02	8-10	7/19/00	ND	0.0024	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
BBF-SED-03	0-2	7/19/00		***	-			_	-					
BBF-SED-03	2-4	7/19/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
BBF-SED-04	0-2	7/20/00	0.0046	0.0018	0.0023	ND	ND	ND	ND	ND	ND	ND	ND	ND
BBF-SED-04	2-4	7/20/00	ND	0.0025	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
BBF-SED-04	6-8	7/20/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
BBF-SED-05	0-2	7/21/00	0.066	0.0044	0.0032	ND	ND	ND	ND	ND	ND	ND	ND	ND
BBF-SED-05	2-4	7/21/00	0.022	0.0072	0.0028	ND	0.0027	ND	ND	ND	0.0035	ND	ND	ND
BBF-SED-05	8-10	7/21/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
BBF-SED-06	0-2	7/25/00											-	
BBF-SED-06	4-6	7/25/00	ND	ND	0.0035	ND	ND	0.00098	ND	ND	ND	ND	ND	ND
BBF-SED-06	6-8	7/25/00	0.0062	ND	0.0045	ND	ND	ND	ND	ND	ND	ND	ND	ND
BBF-SED-07	0-2	9/7/00	0.063	0.075	ND	ND	ND	ND	ND	ND	0.048	ND	ND	ND
BBF-SED-07	2-4	9/7/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
BBF-SED-07	6-8	9/7/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
BBF-SED-08	0-2	9/6/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
BBF-SED-08	2-4	9/6/00	_			_								*****
BBF-SED-09	0-2	9/6/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
BBF-SED-09	2-4	9/6/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
BBF-SED-10	0-2	9/6/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
BBF-SED-10	2-4	9/6/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
BBF-SED-11	0-2	7/26/00							***			***		
BBF-SED-11	6-8	7/26/00	0.0042	ND	0.0036	ND	ND	ND	ND	ND	ND	-ND	ND	ND
BBF-SED-11	8-10	7/26/00	0.0035	ND	0.0055	ND	ND	ND	ND	ND	ND	ND	ND	ND
BBF-SED-12	0-2	9/6/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
BBF-SED-12	2-4	9/6/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
BBF-SED-12	6-8	9/6/00	0.042	0.04	0.025	ND	ND	ND	ND	ND	ND	ND	ND	ND
BBF-SED-13	0-2	9/6/00	0.238	0.238	0.064	ND	ND	ND	ND	ND	ND	ND	ND	ND
BBF-SED-13	2-4	9/6/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
BBF-SED-13	4-6	9/6/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
BBF-SED-14	0-2	9/6/00	0.634	0,416	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
BBF-SED-14	2-4	9/6/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
BBF-SED-15	2-4	7/26/00												

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MUDDY RIVER RESTORATION PROJECT BACK BAY FENS PESTICIDE SEDIMENT SAMPLE ANALYSIS RESULTS (mo/ke

Sample ID Cepth Sample Cepth				PES'	TICIDE S	EDIMENT	Γ SAMP	LE ANAL	YSIS RE	SULTS (mg	g/kg)				
Sample ID		Sample													Endo-
Sample ID (ft BGS) Date 4,4'-DDD 4,4'-DDE 4,4'-DDT Aldrin chlordane BHC beta-BHC delta-BHC Dieldrin sulfan I sulfan		Depth	Sample					Alpha-	alpha-				Endo-	Endo-	sulfan
BBF-SED-15	Sample ID	(ft BGS)	Date	4,4'-DDD	4,4'-DDE	4,4'-DDT	Aldrin			beta-BHC	delta-BHC	Dieldrin			sulfate
BBF-SED-15 6-8													JUZZUK I	DOMESTI I	Duniate
BBF-SED-16 0-2 9/6/00 ND ND ND ND ND ND ND									ND	ND	ND	ND	ND	ND	ND
BBF-SED-16 2-4 9/6/00 ND 0.031 ND ND ND ND ND ND ND N							ND	ND	ND	ND	ND	ND	ND	ND	ND
BBF-SED-16			1		}		ND	ND	ND	ND	ND	ND	ND	ND	ND
BBF-SED-17			1				ND	ND	ND	ND	ND	ND	ND	ND	ND
BBF-SED-17 2-4 7/26/00 ND ND ND ND ND ND ND					ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
BBF-SED-17 6-8 7/26/00 ND ND ND ND ND ND ND					ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
BBF-SED-18			7/26/00		ND	0.021	ND	ND	ND	ND	ND	ND	ND	ND	0.024
BBF-SED-18					ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.25
BBF-SED-18			7/27/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
BBF-SED-19			7/27/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
BBF-SED-19			7/27/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
BBF-SED-19 8-10 8/15/00 —			8/15/00	0.059	ND	0.025	ND	ND	ND	ND	ND	ND	ND	ND	ND
BBF-SED-20		4-6	8/15/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
BBF-SED-21		8-10	8/15/00			****	-	***	011110		****	awo	-		
BBF-SED-21		0-2	8/14/00	0.49	0.7	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
BBF-SED-21A 2-4 8/14/00			8/14/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
BBF-SED-21		0-2	8/14/00	0.055	0.095	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
BBF-SED-22		2-4	8/14/00	***	****			***	tion.	***	-	APRILATE			
BBF-SED-22 2-4 8/14/00 ND ND ND ND ND ND ND			8/14/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
BBF-SED-22 2-4 8/14/00 ND ND ND ND ND ND ND			8/14/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
BBF-SED-23 2-4 8/15/00 ND ND ND ND ND ND ND			8/14/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
BBF-SED-23 2-4 8/15/00 ND ND ND ND ND ND ND			8/15/00	0.064	0.1	0.047	ND	ND	ND	ND	ND	ND	ND	ND	ND
BBF-SED-24 0-2 8/11/00 ND ND ND ND ND ND ND		2-4	8/15/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
BBF-SED-24 4-6 8/11/00 ND ND ND ND ND ND ND			8/15/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
BBF-SED-24		0-2	8/11/00	ND	ND	ND	ND	ND	0.078	ND	ND	ND	ND	ND ·	ND
BBF-SED-24 6-8 8/11/00 ND ND ND ND ND ND ND		4-6	8/11/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
BBF-SED-25 0-2 8/11/00 0.3 0.33 0.23 ND ND ND ND ND ND ND N	BBF-SED-24	6-8	8/11/00	ND	ND	ND	ND	ND	0.0115	ND	ND	ND	ND	ND	ND
BBF-SED-25 2-4 8/11/00 0.31 0.33 0.21 ND ND ND ND ND ND ND N			8/11/00	0.3	0.33	0.23	ND	ND				§			ND
BBF-SED-25 6-8 8/11/00 ND ND ND ND ND ND ND		2-4	8/11/00	0.31	0.33	0.21	ND	ND	ND	ND					ND
DDF GFD 44			8/11/00	ND	ND	ND	ND	ND	ND	ND				1	ND
	BBF-SED-26	0-2	8/11/00	0.25	0.28	0.14	ND	ND	ND	ND	ND	0.057	ND	ND	ND
BBF-SED-26 4-6 8/11/00 ND ND ND ND ND ND ND		4-6	8/11/00	ND	ND	ND	ND	ND	0.055						ND
BBF-SED-26 12-14 8/11/00 ND ND ND ND ND ND ND			8/11/00	ND	ND	ND	ND	ND						1	ND
BBF-SED-27 0-2 8/11/00 1.2 0.65 0.85 ND 0.091 ND ND ND 0.72 ND ND		0-2	8/11/00	1.2	0.65	0.85	ND	0.091							ND
DDE CED 27 46 ANAMO AND	BBF-SED-27	4-6	8/11/00	0.18	0.15	0.18	ND	0.047							ND

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	Sample													Endo-
	Depth	Sample					Alpha-	alpha-				Endo-	Endo-	sulfan
Sample ID	(ft BGS)	Date	4,4'-DDD	4,4'-DDE	4,4'-DDT	Aldrin	chlordane	BHC	beta-BHC	delta-BHC	Dieldrin		sulfan II	sulfate
											210101111	Duzzum 1	Julian II	Surrace
BBF-SED-27	6-8	8/11/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
BBF-SED-28	0-2	8/9/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
BBF-SED-28	2-4	8/9/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
BBF-SED-28	10-12	8/9/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
BBF-SED-29	0-2	8/9/00	ND	0.031	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
BBF-SED-29	4-6	8/9/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
BBF-SED-29	6-8	8/9/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
BBF-SED-30	0-2	7/27/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
BBF-SED-30	2-4	7/27/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
BBF-SED-31	0-2	7/28/00	0.045	0.021	0.019	ND	0.019	ND	ND	ND	0.014	ND	ND	ND
BBF-SED-31	4-6	7/28/00	0.49	ND	ND	ND	0.047	ND	ND	ND	0.67	ND	ND	ND
BBF-SED-31	10-12	7/28/00	ND	0.0041	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
BBF-SED-32	0-2	8/9/00	0.18	0.063	ND	ND	0.045	ND	ND	ND	ND	ND	ND	ND
BBF-SED-32	4-6	8/9/00	0.85	0.44	0.78	ND	0.028	0.039	ND	ND	ND	ND	ND	ND
BBF-SED-32	8-10	8/9/00	ND	ND	ND	ND	ND	ND	'ND	ND	ND	ND	ND	ND
BBF-SED-33	0-2	7/27/00	0.12	0.054	0.044	ND	0.022	ND	ND	ND	0.033	ND	ND	ND
BBF-SED-33	2-4	7/27/00	0.016	ND	0.0055	ND	0.0049	ND	ND	ND	ND	ND	ND	ND
BBF-SED-33	6-8	7/27/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
BBF-SED-34	0-2	8/8/00	0.52	0.14	0.64	ND	0.081	ND	0.49	ND	ND	ND	ND	ND
BBF-SED-34	4-6	8/8/00	ND	ND	0.096	ND	ND	ND	0.54	ND	ND	ND	ND	ND
BBF-SED-34	6-8	8/8/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
BBF-SED-35	0-2	8/8/00	0.25	0.18	0.26	ND	ND	0.055	0.36	ND	ND	ND	ND	ND
BBF-SED-35	4-6	8/8/00	ND	ND	ND	ND	ND	0.044	0.35	ND	ND	ND	ND	ND
BBF-SED-35	8-10	8/8/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
BBF-SED-36	0-2	8/8/00	0.11	0.075	0.2	ND	ND	0.073	0.55	ND	ND	ND	ND	ND
BBF-SED-36	4-6	8/8/00	ND	ND	ND	ND	ND	ND	0.043	ND	ND	ND	ND	ND
BBF-SED-36	6-8	8/8/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
BBF-SED-37	0-2	7/28/00	0.31	0.14	ND	ND	0.16	ND	ND	ND	0.11	ND	ND	ND
BBF-SED-37	4-6	7/28/00	0.17	0.089	ND	ND	0.035	ND	ND	ND	0.058	ND	ND	ND
BBF-SED-37	6-8	7/28/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
BBF-SED-38	0-2	8/7/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
BBF-SED-38	6-8	8/7/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
BBF-SED-39	0-2	8/7/00	0.68	0.65	0.77	ND	0.052	ND	ND	ND	ND	ND	ND	ND
BBF-SED-39	4-6	8/7/00	0.2	0.15	0.23	ND	0.028	ND	ND	ND	ND	ND	ND	ND
BBF-SED-39	8-10	8/7/00	0.012	ND	0.015	ND	ND	ND	ND	ND	ND	ND	ND	ND

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Sample ID	Sample Depth (ft BGS)	Sample Date	4,4'-DDD	4,4′-DDE	4,4′-DDT	Aldrin	Alpha- chlordane	alpha- BHC	beta-BHC	delta-BHC	Dieldrin	Endo- sulfan I	Endo- sulfan II	Endo- sulfar sulfat
BBF-SED-40	0-2	7/31/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
BBF-SED-40	2-4	7/31/00	0.0066	ND	0.0051	ND	0.0036	ND	ND	ND	ND	ND	ND	ND
BBF-SED-40	6-8	7/31/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
BBF-SED-41	0-2	8/4/00	ND	ND	ND	ND	ND	0.0047	0.0082	ND	ND	ND	ND	ND
BBF-SED-41	4-6	8/4/00	ND	ND	ND	ND	ND	ND	0.0032	ND	ND	ND	ND	ND
BBF-SED-41	6-8	8/4/00	ND	ND	ND	ND	ND	0.0014	0.011	ND	ND	ND	ND	ND
BBF-SED-42	0-2	7/31/00	0.025	ND	0.012	ND	0.008	ND	ND	ND	0.014	ND	ND	ND
BBF-SED-42	2-4	7/31/00	0.0049	ND	0.0029	ND	0.0014	ND	ND	ND	ND	ND	ND	ND
BBF-SED-42	4-6	7/31/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
BBF-SED-43	0-2	8/1/00	0.092	0.081	0.042	ND	0.006	ND	ND	ND	0.018	ND	ND	ND
BBF-SED-43	4-6	8/1/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
BBF-SED-43	6-8	8/1/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
BBF-SED-44	0-2	8/4/00	ND	ND	0.0052	ND	ND	ND	ND	ND	ND	ND	ND	ND
BBF-SED-44	4-6	8/4/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
BBF-SED-44	6-8	8/4/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
BBF-SED-45	0-2	8/1/00	0.46	0.31	0.29	ND	0.014	ND	ND	ND	0.13	ND	ND	ND
BBF-SED-45	4-6	8/1/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
BBF-SED-45	6-8	8/1/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.004
BBF-SED-46	0-2	8/3/00	ND	ND	0.082	0.094	ND	ND	ND	ND	ND	ND	ND	ND
BBF-SED-46	4-6	8/3/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
BBF-SED-46	6-8	8/3/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
BBF-SED-47	0-2	8/3/00	0.37	0.53	0.46	ND	0.043	ND	ND	ND	ND	ND	ND	ND
BBF-SED-47	4-6	8/3/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
BBF-SED-47	6-8	8/3/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
BBF-SED-48	0-2	8/1/00	0.037	0.019	0.022	ND	ND	ND	ND	ND	ND	ND	ND	ND
BBF-SED-48	2-4	8/1/00	ND	ND	0.0038	ND	ND	ND	ND	ND	ND	ND	ND	ND
BBF-SED-48	4-6	8/1/00	ND	ND	ND	ND	ND	ND	ND	0.0016	ND	ND	ND	ND
BBF-SED-49	0-2	8/2/00	1.5	0.34	0.8	ND	0.17	ND	ND	ND	0.16	ND	ND	ND
BBF-SED-49	4-6	8/2/00	ND	ND	0.052	ND	ND	ND	0.095	ND	ND	ND	ND	ND
BBF-SED-49	6-8	8/2/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
BBF-SED-50	0-2	8/2/00	1.8	0.49	0.99	ND	0.1	ND	ND	ND	0.52	ND	ND	ND
BBF-SED-50	4-6	8/2/00	0.25	0.082	0.1	ND	0.018	ND	ND	ND	ND	ND	ND	ND
BBF-SED-50	6-8	8/2/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
BBF-SED-51	0-2	8/2/00	0.1	ND	0.16	ND	0.022	0.037	ND	ND	ND	ND	ND	ND
BBF-SED-51	2-4	8/2/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

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	Sample													Endo-
	Depth	Sample					Alpha-	alpha-				Endo-	Endo-	sulfan
Sample ID	(ft BGS)	Date	4,4'-DDD	4,4'-DDE	4,4'-DDT	Aldrin	chlordane	BHC	beta-BHC	delta-BHC	Dieldrin	sulfan I	sulfan II	sulfate
BBF-SED-51	4-6	8/2/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
BBF-SED-52	0-2	8/3/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
BBF-SED-52	4-6	8/3/00	ND	ND	0.048	ND	ND	ND	ND	ND	ND	ND	ND	ND
BBF-SED-52	6-8	8/3/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
BBF-SED-53	0-2	8/3/00	0.67	0.6	0.59	ND	0.038	ND	ND	ND	ND	ND	ND	ND
BBF-SED-53	4-6	8/3/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
BBF-SED-53	6-8	8/3/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
BBF-SED-54	0-2	8/2/00	0.43	0.26	0.58	ND	0.067	ND	ND	ND	ND	ND	ND	ND
BBF-SED-54	6-8	8/2/00	0.041	0.048	0.14	ND	ND	ND	ND	ND	ND	ND	ND	ND
BBF-SED-54	8-10	8/2/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
BBF-SED-55	0-2	8/2/00	0.27	0.22	0.48	ND	0.037	ND	ND	ND	ND	ND	ND	ND
BBF-SED-55	6-8	8/2/00	0.071	0.066	0.16	ND	ND	0.047	ND	ND	ND	ND	ND	ND
BBF-SED-55	8-10	8/2/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
BBF-SED-56	0-2	8/2/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
BBF-SED-56	2-4	8/2/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
BBF-SED-57	0-2	8/2/00	ND	ND	0.15	ND	ND	ND	0.15	ND	ND	ND	ND	ND
BBF-SED-57	4-6	8/2/00	0.18	0.15	0.23	ND	0.03	ND	ND	ND	ND	ND	ND	ND
BBF-SED-57	8-10	8/2/00	0.021	ND	0.023	ND	ND	ND	0.073	ND	ND	ND	ND	ND
BBF-SED-58	0-2	8/1/00	2.3	0.55	1.5	ND	0.13	ND	ND	ND	ND	ND	ND	ND
BBF-SED-58	2-4	8/1/00	0.55	0.36	0.58	ND	0.071	ND	ND	ND	0.22	ND	ND	ND
BBF-SED-58	6-8	8/1/00	0.0028	ND	0.0049	ND	0.0018	ND	ND	ND	ND	ND	ND	ND
BBF-SED-58	10-12	8/1/00	0.041	0.0295	0.024	ND	0.0047	ND	ND	ND	0.006	ND	ND	ND
BBF-SED-59	0-2	8/1/00	0.17	0.05	0.039	ND	0.002	ND	ND	ND	ND	ND	ND	ND
BBF-SED-59	4-6	8/1/00	0.041	0.049	0.026	ND	ND	ND	ND	ND	ND	ND	ND	ND
BBF-SED-59	8-10	8/1/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
BBF-SED-60	0-2	8/1/00	ND	0.0082	0.036	ND .	ND	0.011	ND	ND	ND	ND	ND	ND
BBF-SED-60	2-4	8/1/00	0.015	0.015	0.028	ND	ND	ND	ND	ND	ND	ND	ND	ND
BBF-SED-60	8-10	8/1/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

Notes:
--- = Not Analyzed
ND = Not Detected

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MUDDY RIVER RESTORATION PROJECT BACK BAY FENS

			PEST	CICIDE SED	IMENT SA	MPLE ANA	LYSIS RES	ULTS (mg/k	g)			
Sample ID	Sample Depth (ft BGS)	Sample Date	Endrin	Endrin aldehyde	Endrin ketone	gamma- BHC	gamma- Chlordane	Hepta-chlor	Heptachlor epoxide	Methoxy- chlor	Toxaphene	Technical Chlordane
BBF-SED-01	0-2	10/18/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
BBF-SED-02	0-2	7/19/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
BBF-SED-02	6-8	7/19/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
BBF-SED-02	8-10	7/19/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
BBF-SED-03	0-2	7/19/00	British .			****			awa .			
BBF-SED-03	2-4	7/19/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
BBF-SED-04	0-2	7/20/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
BBF-SED-04	2-4	7/20/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
BBF-SED-04	6-8	7/20/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
BBF-SED-05	0-2	7/21/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
BBF-SED-05	2-4	7/21/00	ND	ND	ND	ND	0.0036	ND	ND	ND	ND	ND
BBF-SED-05	8-10	7/21/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
BBF-SED-06	0-2	7/25/00	***						***			
BBF-SED-06	4-6	7/25/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
BBF-SED-06	6-8	7/25/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
BBF-SED-07	0-2	9/7/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
BBF-SED-07	2-4	9/7/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
BBF-SED-07	6-8	9/7/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
BBF-SED-08	0-2	9/6/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
BBF-SED-08	2-4	9/6/00					. 1,15			000		_
BBF-SED-09	0-2	9/6/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
BBF-SED-09	2-4	9/6/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
BBF-SED-10	0-2	9/6/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
BBF-SED-10	2-4	9/6/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
BBF-SED-11	0-2	7/26/00	_	000	****		2100			1410		
BBF-SED-11	6-8	7/26/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
BBF-SED-11	8-10	7/26/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
BBF-SED-12	0-2	9/6/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
BBF-SED-12	2-4	9/6/00	ND	ND	ND	ND	ND	ND	ND	ND	ND .	ND
BBF-SED-12	6-8	9/6/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
BBF-SED-13	0-2	9/6/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
BBF-SED-13	2-4	9/6/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
BBF-SED-13	4-6	9/6/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
BBF-SED-14	0-2	9/6/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
BBF-SED-14	2-4	9/6/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
BBF-SED-15	2-4	7/26/00				200						IND

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	Sample										T	
	Depth	Sample		Endrin	Endrin	gamma-	gamma-		Heptachlor	Methoxy-		Technical
Sample ID	(ft BGS)	Date	Endrin	aldehyde	ketone	BHC	Chlordane	Hepta-chlor	Α.	chlor	Toxaphene	Chlordane
												Candradate
BBF-SED-15	4-6	7/26/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
BBF-SED-15	6-8	7/26/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
BBF-SED-16	0-2	9/6/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
BBF-SED-16	2-4	9/6/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
BBF-SED-16	4-6	9/6/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
BBF-SED-17	0-2	7/26/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
BBF-SED-17	2-4	7/26/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
BBF-SED-17	6-8	7/26/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
BBF-SED-18	0-2	7/27/00	ND	ND	ND	ND	0.0037	ND	ND	ND	ND	ND
BBF-SED-18	2-4	7/27/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
BBF-SED-18	4-6	7/27/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
BBF-SED-19	0-2	8/15/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
BBF-SED-19	4-6	8/15/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
BBF-SED-19	8-10	8/15/00									***	
BBF-SED-20	0-2	8/14/00	ND	ND	ND	ND	0.12	ND	ND	ND	ND	ND
BBF-SED-20	4-6	8/14/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
BBF-SED-21	0-2	8/14/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
BBF-SED-21A	2-4	8/14/00										
BBF-SED-21A	6-8	8/14/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
BBF-SED-22	0-2	8/14/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
BBF-SED-22	2-4	8/14/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
BBF-SED-23	0-2	8/15/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
BBF-SED-23	2-4	8/15/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
BBF-SED-23	12-14	8/15/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
BBF-SED-24	0-2	8/11/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
BBF-SED-24	4-6	8/11/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
BBF-SED-24	6-8	8/11/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
BBF-SED-25	0-2	8/11/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
BBF-SED-25	2-4	8/11/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
BBF-SED-25	6-8	8/11/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
BBF-SED-26	0-2	8/11/00	ND	ND	ND	ND	ND	ND	ND	ND	ND ND	ND
BBF-SED-26	4-6	8/11/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
BBF-SED-26	12-14	8/11/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
BBF-SED-27	0-2	8/11/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
BBF-SED-27	4-6	8/11/00	ND	ND	ND	ND	0.049	ND	ND	ND	ND	ND

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MUDDY RIVER RESTORATION PROJECT BACK BAY FENS PESTICIDE SEDIMENT SAMPLE ANALYSIS RESULTS (mg/kg)

Sample ID	Sample Depth (ft BGS)	Sample Date	Endrin	Endrin aldehyde	Endrin ketone	gamma- BHC	gamma- Chlordane	Hepta-chlor	Heptachlor epoxide	Methoxy-	Toxaphene	Technical Chlordan
BBF-SED-27	6-8	8/11/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
BBF-SED-28	0-2	8/9/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
BBF-SED-28	2-4	8/9/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
BBF-SED-28	10-12	8/9/00	ND	ND	ND	ND	ND	ND	ND	ND	ND ND	ND
BBF-SED-29	0-2	8/9/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
BBF-SED-29	4-6	8/9/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
BBF-SED-29	6-8	8/9/00	ND	ND	ND	ND	ND					ND
BBF-SED-30	0-2	7/27/00	ND	ND	ND	ND	ND	ND ND	ND ND	ND	ND	
BBF-SED-30	2-4	7/27/00	ND	ND	ND					ND	ND	ND
BBF-SED-31	0-2	7/28/00	ND	ND		ND	ND	ND	ND	ND	ND	ND
BBF-SED-31	4-6	7/28/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
BBF-SED-31	10-12	7/28/00	ND ND		ND	ND	ND	ND	ND	ND	ND	ND
BBF-SED-32	0-12	8/9/00	ND	ND ND	ND	ND	ND	ND	ND	ND	ND	ND
BBF-SED-32	4-6	8/9/00	ND		ND	ND	ND	ND	ND	ND	ND	ND
BBF-SED-32	8-10	8/9/00	ND	ND ND	ND	ND	ND	ND	ND	ND	ND	ND
BBF-SED-33	0-2	7/27/00	ND		ND	ND	ND	ND	ND	ND	ND	ND
BBF-SED-33	2-4	7/27/00	ND	ND	ND	ND	0.062	ND	ND	ND	ND	ND
BBF-SED-33	6-8	7/27/00	ND	ND ND	ND	ND	0.012	ND	ND	ND	ND	ND
BBF-SED-34	0-2	8/8/00			ND	ND	ND	ND	ND	ND	ND	ND
BBF-SED-34	4-6		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
BBF-SED-34	6-8	8/8/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
BBF-SED-35		8/8/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	0-2	8/8/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
BBF-SED-35	4-6	8/8/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
BBF-SED-35	8-10	8/8/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
BBF-SED-36	0-2	8/8/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
BBF-SED-36	4-6	8/8/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
BBF-SED-36	6-8	8/8/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
BBF-SED-37	0-2	7/28/00	ND	ND	ND	ND	0.32	ND	ND	ND	ND	ND
BBF-SED-37	4-6	7/28/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
BBF-SED-37	6-8	7/28/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
BBF-SED-38	0-2	8/7/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
BBF-SED-38	6-8	8/7/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
BBF-SED-39	0-2	8/7/00	ND	ND	ND	ND	ND	ND	ND	0.059	ND	ND
BBF-SED-39	4-6	8/7/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
BBF-SED-39	8-10	8/7/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

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	Sample											1
	Depth	Sample		Endrin	Endrin	gamma-	gamma-		Heptachlor	Methoxy-		Technical
Sample ID	(ft BGS)	Date	Endrin	aldehyde	ketone	BHC	Chlordane	Hepta-chlor	epoxide	chlor	Toxaphene	Chlordane
BBF-SED-40	0-2	7/31/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
BBF-SED-40	2-4	7/31/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
BBF-SED-40	6-8	7/31/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
BBF-SED-41	0-2	8/4/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
BBF-SED-41	4-6	8/4/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
BBF-SED-41	6-8	8/4/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
BBF-SED-42	0-2	7/31/00	ND	ND	ND	ND	0.003	ND	ND	ND	ND	ND
BBF-SED-42	2-4	7/31/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
BBF-SED-42	4-6	7/31/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
BBF-SED-43	0-2	8/1/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
BBF-SED-43	4-6	8/1/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
BBF-SED-43	6-8	8/1/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
BBF-SED-44	0-2	8/4/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
BBF-SED-44	4-6	8/4/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
BBF-SED-44	6-8	8/4/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
BBF-SED-45	0-2	8/1/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
BBF-SED-45	4-6	8/1/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
BBF-SED-45	6-8	8/1/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
BBF-SED-46	0-2	8/3/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
BBF-SED-46	4-6	8/3/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
BBF-SED-46	6-8	8/3/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
BBF-SED-47	0-2	8/3/00	ND	0.058	ND	ND	ND	ND	ND	ND	ND	ND
BBF-SED-47	4-6	8/3/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
BBF-SED-47	6-8	8/3/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
BBF-SED-48	0-2	8/1/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
BBF-SED-48	2-4	8/1/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
BBF-SED-48	4-6	8/1/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
BBF-SED-49	0-2	8/2/00	ND	0.07	ND	ND	0.6	ND	ND	ND	ND	ND
BBF-SED-49	4-6	8/2/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
BBF-SED-49	6-8	8/2/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
BBF-SED-50	0-2	8/2/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
BBF-SED-50	4-6	8/2/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
BBF-SED-50	6-8	8/2/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
BBF-SED-51	0-2	8/2/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
BBF-SED-51	2-4	8/2/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

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MUDDY RIVER RESTORATION PROJECT BACK BAY FENS PESTICIDE SEDIMENT SAMPLE ANALYSIS RESULTS (mg/kg)

	Sample Depth	Sample		Endrin	Endrin	gamma-	gamma-		Heptachlor	Methoxy-		Technical
Sample ID	(ft BGS)	Date	Endrin	aldehyde	ketone	BHC	Chlordane	Hepta-chlor	epoxide	chlor	Toxaphene	Chlordane
BBF-SED-51	4-6	8/2/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
BBF-SED-52	0-2	8/3/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
BBF-SED-52	4-6	8/3/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
BBF-SED-52	6-8	8/3/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
BBF-SED-53	0-2	8/3/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
BBF-SED-53	4-6	8/3/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
BBF-SED-53	6-8	8/3/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
BBF-SED-54	0-2	8/2/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
BBF-SED-54	6-8	8/2/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
BBF-SED-54	8-10	8/2/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
BBF-SED-55	0-2	8/2/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
BBF-SED-55	6-8	8/2/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
BBF-SED-55	8-10	8/2/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
BBF-SED-56	0-2	8/2/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
BBF-SED-56	2-4	8/2/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
BBF-SED-57	0-2	8/2/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
BBF-SED-57	4-6	8/2/00	ND	0.079	ND	ND	ND	ND	ND	ND	ND	ND
BBF-SED-57	8-10	8/2/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
BBF-SED-58	0-2	8/1/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
BBF-SED-58	2-4	8/1/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
BBF-SED-58	6-8	8/1/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
BBF-SED-58	10-12	8/1/00	ND	ND	ND	ND	0.004	ND	ND	ND	ND	ND
BBF-SED-59	0-2	8/1/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
BBF-SED-59	4-6	8/1/00	ND	ND	ND	ND	ND	ND	ND	· ND	ND	ND
BBF-SED-59	8-10	8/1/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
BBF-SED-60	0-2	8/1/00	ND	0.037	ND	ND	ND	ND	ND	ND	ND	ND
BBF-SED-60	2-4	8/1/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
BBF-SED-60	8-10	8/1/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

Notes:

- = Not Analyzed

ND = Not Detected

	Sample		TCLP			TCLP		TCLP		TCLP		TCLP			
	Depth	Sample	Arsenic			Cadmium		Chromium		Lead		Mercury			
Sample ID	(A BGS)	Date	(mg/L)	Arsenic	Barium	(mg/L)	Cadmium	(mg/L)	Chromium	(mg/L)	Lead	(mg/L)	Morcury	Selenium	Silver
BBF-SED-01	0-2	10/18/00	_	81	98	***	4.0		70	1.0					
BBF-SED-02	0-2	7/19/00	_	ND	ND	_	ND ND	***		1.0	440	_	1.4	ND	ND
BBF-SED-02	6-8	7/19/00	_	ND	ND	_	ND		30	-	87	-	0.54	ND	ND
BBF-SED-02	8-10	7/19/00		ND	ND	_		_	18	-	18	-	0.19	ND	ND
BBF-SED-03	0-2	7/19/00	-	ND	ND	_	ND	_	11		10		190.0	ND	ND
BBF-SED-03	2-4	7/19/00	_	ND		_	ND	ь	13		39	_	0.067	ND	NĐ
BBF-SED-04	0-2	7/20/00	-		42	_	ND		25		13	-	ND	ND	ND
BBF-SED-04	2-4		_	ND	ND	_	ND	-	15		31	-	0.15	ND	ND
BBF-SED-04		7/20/00		7.6	28		0.3		24		39		0.59	ND	ND
	6-8	7/20/00	_	11	60	-	0.27		18	ND	160	-	0.77	3.6	ND
BBF-SED-05	0-2	7/21/00	-	ND	ND		ND	_	16		56		0.044	ND	ND
BBF-SED-05	2-4	7/21/00	_	ND	28	-	ND		21	_	26		ND	ND	ND
BBF-SED-05	8-10	7/21/00	_	ND	ND	-	ND		16	_	ND	***	0.041	ND	ND
BBF-SED-06	0-2	7/25/00	_	ND	40	-	0.9		31	_	57		0.18	ND	ND
BBF-SED-06	4-6	7/25/00	-	ND	ND	-	0.74		12		20		0.094	ND	ND
BBF-SED-06	6-8	7/25/00		ND	ND		ND	-	22	_	31	-	0.09	ND	ND
BBF-SED-07	0-2	9/7/00	_	ND	160	_	4.7	ND	160	1.0	920	ND	4.4	ND	ND
BBF-SED-07	2-4	9/7/00		40	230		9.6	ND	390	1.9	1600	ND	5.4	ND	14
BBF-SED-07	6-8	9/7/00	-	16	46	_	ND	***	42	-	31	_	0.39	ND	ND
BBF-SED-08	0-2	9/6/00		22	64	_	0.98	-	41	NED	250	_	0.71	ND	ND
BBF-SED-08	2-4	9/6/00	_	ND	ND		ND		10		21	_	0.053	ND	ND
BBF-SED-09	0-2	9/6/00		46	130	_	6.1	ND	140	ND	740		2.9	ND	ND
BBF-SED-09	2-4	9/6/00	_	18	ND		ND	***	22	_	82	_	0.51	ND	ND
BBF-SED-10	0-2	9/6/00	ND	110	240		11		59	1.2	1100	ND	8.9	ND	5.6
BBF-SED-10	2-4	9/6/00	-	ND	ND		ND		12	_	6.9		ND	ND	ND
BBF-SED-11	0-2	7/26/00	tirtus.	ND	ND		1		14	_	96		0.15	ND	ND
BBF-SED-11	6-8	7/26/00	_	ND	ND	_	ND		8.8		16		0.42	ND	ND
BBF-SED-11	8-10	7/26/00		ND	ND	_	ND	-	10	_	38		0.076	ND	ND
BBF-SED-12	0-2	9/6/00	_	47	230	0.13	23	ND	260	2.1	1500	0.00085	5.7	ND	9.4
BBF-SED-12	2-4	9/6/00		87	220	0.13	7.5	ND	110	ND ND					
BBF-SED-12	6-8	9/6/00		ND	ND	_	ND	- ND	7.7		1200	ND	4.5	ND	ND
BBF-SED-13	0-2	9/6/00		44	230	_	14	ND ND			16		0.047	ND	ND
BBF-SED-13	2-4	9/6/00	800	16	ND		ND		420	2.2	1700	ND	5.2	ND	13
BBF-SED-13	4-6	9/6/00	_	ND	ND				30	1.2	140		0.73	ND	ND
BBF-SED-14	0-2	9/6/00		100	220	_	ND		11		7.3		ND	ND	ND
BBF-SED-14	2-4	9/6/00		30		-	16	_	62	1.3	1100	ND	4.3	ND	ND
BBF-SED-15	2-4	7/26/00	0-0		87	_	ND		54	ND	290		1.0	ND	ND
	4-6		400	ND	ND		ND		11	-	90	-	0.34	ND	ND
BBF-SED-15		7/26/00	Prop	ND	ND	-	ND		36	ND	330	-	0.71	ND	ND
BBF-SED-15	6-8	7/26/00		ND	52		ND		32	-	17	-	0.095	ND	ND
BBF-SED-16	0-2	9/6/00	944	48	240		11	ND	360	2.1	1500	0.00046	4.7	ND	13
BBF-SED-16	2-4	9/6/00	440	47	240	_	11	ND	390	1.8	1400		3.5	ND	15
BBF-SED-16	4-6	9/6/00		27	69	-	ND		37	ND	260		1.0	ND	ND
BBF-SED-17	0-2	7/26/00		ND	52	-	ND		29	-	11	_	ND	ND	ND
BBF-SED-17	2-4	7/26/00	-	ND	44-	-	ND		25	_	22		0.093	3.7	ND
BBF-SED-17	6-8	7/26/00	***	ND	41		ND		15		66	_	1.1	ND	ND
BBF-SED-18	0-2	7/27/00	****	15	ND		ND		36	-	ND		ND	ND	ND
BBF-SED-18	2-4	7/27/00		ND	ND	_	ND		27	-	12	'	ND	ND	ND

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MUDDY RIVER RESTORATION PROJECT BACK BAY FENS INORGANIC SEDIMENT SAMPLE ANALYSIS RESULTS (mg/kg)

Sample ID	Sample Depth (ft BGS)	Sample Date	TCLP Arsenic (mg/L)	Arsenic	Barium	TCLP Cadmium (mg/L)	Cadmium	TCLP Chromium (mg/L)	Chromium	TCLP Lead (mg/L)	Lead	TCLP Mercury (mg/L)	Mercury	Selenium	Silve
BBF-SED-18	4-6	7/27/00	-	11	ND		ND	_	32		ND	_	ND	ND	ND
BBF-SED-19	0-2	8/15/00	-	ND	ND	J	1.1		23	ND	120		0.4	ND	ND
BBF-SED-19	4-6	8/15/00	-	ND	ND	l	ND		7.3	***	7.4		0.032	ND	ND
BBF-SED-19	8-10	8/15/00	_	ND	ND	_	ND		16		ND		ND	ND	ND
BBF-SED-20	0-2	8/14/00		70	210	_	10	ND	110	1.4	950		3.2	ND	ND
BBF-SED-20	4-6	8/14/00	_	12	ND	_	ND		28		16	_	ND	ND	ND
BBF-SED-21	0-2*	8/14/00	_	22.5	149	_	8.7		134.5	0.7	795		1.395	ND I	2.75
BBF-SED-21A	2-4	8/14/00	_	ND	ND		ND		14	-	87		0.49	ND	ND
BBF-SED-21A	6-8	8/14/00		11	ND	_	ND		25	_	5.4		ND	ND	ND
BBF-SED-22	0-2	8/14/00	_	21	76		1.5		46	ND				ND	ND
BBF-SED-22	2-4	8/14/00	_	11	ND ND						280	-	0.82		
BBF-SED-23	0-2	8/15/00					ND		26	_	18	-	ND	ND	ND
BBF-SED-23	2-4	8/15/00	_	ND	97		5.4	-	75	ND	500	-	0.93	ND	ND
BBF-SED-23	12-14	8/15/00	_	ND	ND	_	ND		12	_	25		0.069	ND	ND
BBF-SED-24				13	ND		ND		32	~	8.4	-	ND	ND	NE
	0-2	8/11/00	-	19	140		10	-	28	1.2	580	1 -	2.2	ND	ND
BBF-SED-24	4-6	8/11/00				_			-	1.5		-	1.8	- 1	-
BBF-SED-24	6-8*	8/11/00		4.75	ND		ND	_	21.5		8.8	-	0.023	ND	ND
BBF-SED-25	0-2	8/11/00	****	50	140	-	4.6		44	1.6	740	-	2.6	ND	ND
BBF-SED-25	2-4	8/11/00	-	19	240	_	9.5	ND	110	1.4	1200		2.1	ND	4.7
BBF-SED-25	6-8	8/11/00		ND	ND	-	ND	_	19		12		ND	ND	ND
BBF-SED-26	0-2	8/11/00		ND	ND		ND	-	23	_	8.7	_	0.41	ND	ND
BBF-SED-26	4-6	8/11/00		ND	ND	-	ND		10		67		0.11	ND	ND
BBF-SED-26	12-14	8/11/00	-	28	85		1.9		21	ND	330	_	0.45	ND	ND
BBF-SED-27	0-2	8/11/00	_	17	340		9.4	ND	210	1.5	2100	-	3.1	ND I	7.5
BBF-SED-27	4-6	8/11/00		40	300		5.3		60		1200		2.8	ND	ND
BBF-SED-27	6-8	8/11/00	_	16	48	-	ND		41	ND	190	_	0.44	ND	ND
BBF-SED-28	0-2	8/9/00	_	ND	ND		1.6		11		64	l _	0.15	ND	ND
BBF-SED-28	2-4	8/9/00	-	ND	35	-	1.5		15	1.6	130	_	1.2	ND	ND
BBF-SED-28	10-12	8/9/00	_	ND	ND	_	ND	_	11		12		0.03	ND	ND
BBF-SED-29	0-2	8/9/00	-	ND	39	_	ND		17	ND	110	-	0.24	ND	ND
BBF-SED-29	4-6	8/9/00	_	ND	ND	_	ND		9.9		61	-	0.24	ND	ND
BBF-SED-29	6-8	8/9/00	-	ND	ND		ND		8		36	_	0.073	ND	NE
BBF-SED-30	0-2	7/27/00	_	ND	ND	_	ND		25		21		0.068	ND	ND
BBF-SED-30	2-4	7/27/00	944	ND	ND		ND	_				-			
BBF-SED-31	0-2	7/28/00		ND	58	_	1.3		24		13	-	ND	ND	ND
BBF-SED-31	4-6	7/28/00							21	0.99	250	-	0.32	ND	ND
BBF-SED-31				ND	51	_	1.9		24	2.6	300		0.44	ND	ND
	10-12	7/28/00		ND	ND	-	ND	-	9		11		ND	ND	ND
BBF-SED-32	0-2	8/9/00	-	ND	64	_	1.3		21	2.6	440		0.59	ND	ND
BBF-SED-32	4-6	8/9/00	_	10	240		5.2		44	3.0	1000		15	ND	ND
BBF-SED-32	8-10	8/9/00		ND	49		0.98	-	22	ND	260		0 92	ND	ND
BBF-SED-33	0-2	7/27/00	-	MD	36		ND		12	1.2	140		4.9	ND	ND
BBF-SED-33	2-4	7/27/00		ND	90	-	2	-	22	ND .	440		0.52	ND	ND
BBF-SED-33	6-8	7/27/00		ND	ND		ND		16	_	ND		ND	ND	ND
BBF-SED-34	0-2	8/8/00		ND	210		4.5	_	75	1.7	990		2.1	ND	NE
BBF-SED-34	4-6	8/8/00		24	350		6.6	-	44	1.5	1400		26	ND	4.8
BBF-SED-34	6-8	8/8/00	-	ND	ND		ND		26		46	_	0 049	ND	ND

	Sample		TCLP			TCLP		TCLP	1	TCLP		TCLP			
	Depth	Sample	Arsenie			Cadminm		Chromium		Lead		Mercury			
Sample ID	(A BGS)	Date	(mg/L)	Amenic	Barium	(mg/L)	Cadmium	(mg/L)	Chromium	(mg/L)	Lead	(mg/L)	Morcury	Selenium	Silver
		25.00	(115/2)	111101110	27MAIORII	(stdy'L)	Cadiment	(mgr)	Cattombuli	(mg/L)	Ligitu	(mg/L)	Mulcury	Scienium	Silver
BBF-SED-35	0-2	8/8/00	-	18	360	-	11	ND	110	3.3	1700	-	2.6	ND	5.7
BBF-SED-35	4-6	8/8/00		20	260	-	2.3	_	41	1.7	910		6.3	ND	2.7
BBF-SED-35	8-10	8/8/00		8.9	ND	_	ND		23		29		0.061	ND	ND
BBF-SED-36	0-2	8/8/00		18	250		3.3		27	ND	950		1.5	ND	ND
BBF-SED-36	4-6	8/8/00		22	300	-	2.9		30	3.6	930		3.4	ND	ND
BBF-SED-36	6-8	8/8/00	-	ND	ND	-	ND	_	17	-	48	_	0.083	ND	ND
BBF-SED-37	0-2	7/28/00	-	ND	130		3	_ :	47	1.0	810		0.82	ND	ND
BBF-SED-37	4-6	7/28/00	-	24	250		2.3	_	34	3.5	1000		2.5	ND	ND
BBF-SED-37	6-8	7/28/00	-	ND	ND	_	ND	-	16		15	_	ND	ND	ND
BBF-SED-38	0-2	8/7/00		ND .	47		ND	_	21	ND	140		1.7	ND	ND
BBP-SHD-38	6-8	8/7/00	_	11	ND	_	ND		26	_	12	_	ND	ND	ND
BBF-SED-39	0-2	8/7/00		17	350	_	13	0.15	160	4.4	1900		3.5	ND	6.5
BBF-SED-39	4-6	8/7/00		39	320	_	7.2	-	57	4.9	1500	_	2.5	ND	ND
BBF-SED-39	8-10	8/7/00		ND	ND		ND		33	4.5	31		1.3	ND	ND
BBF-SED-40	0-2	7/31/00		4.3	15		ND		11		13		ND	ND	ND
BBF-SED-40	2-4	7/31/00	_	2.8	19		0.15		17	_	53	_	0.032	ND	ND
BBF-SED-40	6-8	7/31/00	_	3.7	19		ND	_	13	_	30	1	0.052	ND	ND
BBF-SED-41	0-2	8/4/00		ND	ND		ND		13		91		0.14	ND	ND
BBF-SED-41	4-6	8/4/00		ND	ND	_	ND		13			1		ND	ND
BBF-SED-41	6-8	8/4/00	_	ND	ND		ND	_	26	_	23 15	_	0.35	ND	ND
BBF-SED-42	0-2	7/31/00		8	38		1.2		16	ND		-		ND	
BBF-SED-42	2-4	7/31/00		9.4	17		ND	_	7.6		130 47	-	0.14	ND	ND
BBF-SED-42	4-6	7/31/00		8	27	_	ND	-	26	_	15	-	0.11	ND	ND
BBF-SED-43	0-2	8/1/00		ND	99	_	2.2	****	33			-			
BBF-SED-43	4-6	8/1/00	_	ND	98		ND	-	28	1.5	390		0.56	ND	ND
BBF-SED-43	6-8	8/1/00		ND	ND		ND		32	1.4	320	-	1.6		ND
BBF-SED-44	0-2	8/4/00		12	. 61		ND	_	39	220	86	-	0.17	ND	ND
BBF-SED-44	4-6	8/4/00		19	72		ND	_		ND	300		2.8	ND	ND
BBF-SED-44	6-8	8/4/00		ND	ND	_	ND		41	ND	310		2.1	ND	ND
BBF-SED-45	0-2	8/1/00		14	370	_	14	ND	28		21	_	0.12	ND	ND
BBF-SED-45	4-6	8/1/00		16	62	-	ND		100 37	5.4	2100	_	2.3	ND	4.9
BBF-SED-45	6-8	8/1/00		28	96	_		-		1.6	270	_	2.2	ND	ND
BBF-SED-46	0-2	8/3/00		19	110		ND	_	68	2.9	510	-	3.1	ND	ND
BBF-SED-46	4-6	8/3/00	_	37	98	***	ND	-	59	ND	530	-	5.6	ND	ND
BBF-SED-46	6-8	8/3/00		ND	48		ND	-	68	ND	480		6.1	ND	ND
BBF-SED-47	0-2	8/3/00		25	360		ND	-	43	ND	120	-	0.66	ND	ND
BBF-SED-47	4-6	8/3/00	_	ND	150	_	11	-	71	5.4	1600	_	3.6	ND	5.0
BBF-SED-47	6-8	8/3/00		49		-	ND		39	2.6	490	_	3.2	ND	ND
BBF-SED-48	0-2	8/1/00		22	81 150	_	ND		68	ND	390	_	7.6	ND	ND
BBF-SED-48	2-4	8/1/00		12	78		3.9	-	34	3.0	700	-	2.2	ND	ND
BBF-SED-48	4-6	8/1/00		ND ND	ND	_	ND		31	5.5	270		2.2	ND	ND
BBF-SED-49	0-2	8/2/00		15	280	-	ND		26		32	_	0.19	ND	ND
BBF-SED-49	4-6	8/2/00	_	ND			7.5	ND	110	3.6	1400	***	2.4	ND	ND
BBF-SED-49	6-8	8/2/00		21	89	-	ND	-	33	1.2	290		4.3	ND	ND
BBF-SED-50	0-8	8/2/00	_	ND ND	100 230		0.5	-	53	ND	400	***	1.4	ND	ND
BBF-SED-50	4-6	8/2/00		ND		_	5.2	_	34	3.8	1100		1.6	ND	ND
PDF-3ED-30	4-0	8/2/00		מא	ND		ND		11	***	35	_	0.31	ND	ND

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MUDDY RIVER RESTORATION PROJECT BACK BAY FENS INORGANIC SEDIMENT SAMPLE ANALYSIS RESULTS (mg/kg)

	Sample		TCLP			TCLP		TCLP		TCLP		TCLP			
	Depth	Sample	Arsenic			Cadmium		Chromium		Lead		Mercury			
Sample ID	(ft BGS)	Date	(mg/L)	Arsenic	Barium	(mg/L)	Cadmium	(mg/L)	Chromium	(mg/L)	Lead	(mg/L)	Mercury	Selenium	Silver
BBF-SED-50	6-8	8/2/00	_	ND	ND		ND		24	_	ND	_	ND	ND	ND
BBF-SED-51	0-2	8/2/00	_	ND	210	_	5.6		53	5.0	1000		1.7	ND	3.3
BBF-SED-51	2-4	8/2/00		ND	ND	_	ND		23	5.0	19		ND	ND	ND
BBF-SED-51	4-6	8/2/00		ND	ND	_	ND		28		ND		ND	ND	ND
BBF-SED-52	0-2	8/3/00		32	290	_	5.5		59	4.1	1200	_	2.3	ND	ND
BBF-SED-52	4-6	8/3/00		35	340		8.5		76	5.8	1500		2.5	6.0	3.8
BBF-SED-52	6-8	8/3/00	_	ND	11		ND		8.9	J.6	8.6		ND	ND ND	ND
BBF-SED-53	0-2	8/3/00		15	240	_	7.2		50	4.1	1100		2.4	ND	ND
BBF-SED-53	4-6	8/3/00		ND	ND	_	ND	_	18		90	_	0.58	ND	ND
BBF-SED-53	6-8	8/3/00		ND	ND		ND	_	10		8.7		ND	ND	ND
BBF-SED-54	0-2	8/2/00	_	16	340	_	12	ND	110	5.2	1700	_	3.4	ND	6.9
BBF-SED-54	6-8	8/2/00	_	33	360		8.9	_	75	4.4	1500		2.5	ND	3.9
BBF-SED-54	8-10	8/2/00	_	ND	ND		ND		7.3		15		0.17	ND	ND
BBF-SED-55	0-2	8/2/00	_	20	330	_	11		78	5.5	1600		2.1	ND	5.1
BBF-SED-55	6-8	8/2/00		25	260		6.4	***	56	6.1	1100		2.9	ND	ND
BBF-SED-55	8-10	8/2/00	_	ND	ND	-	ND		11	_	12	-	ND	ND	ND
BBF-SED-56	0-2	8/2/00	_	ND	ND	_	ND		13	_	62	***	0.42	ND	ND
BBF-SED-56	2-4	8/2/00	-	ND	ND	_	ND	_	14	_	21	-	0.063	ND	ND
BBF-SED-57	0-2	8/2/00	_	ND	120		4.1		32	1.6	600	l –	1.8	ND	ND
BBF-SED-57	4-6	8/2/00		14	300		8.9	_	69	4.0	1300		2.1	ND	3.6
BBF-SED-57	8-10	8/2/00		ND	ND		ND	_	9.5	_	77		0.14	ND	ND
BBF-SED-58	0-2	8/1/00		ND	300	-	11	ND	130	5.1	1500	-	0.056	ND	6.5
BBF-SED-58	2-4	8/1/00		21	370	_	13		98	4.7	1800	-	0.11	ND	6.4
BBF-SED-58	6-8	8/1/00	_	ND	32	-	ND		10	-	15	-	ND	ND	ND
BBF-SED-58	10-12*	8/1/00	_	ND	ND	-	ND	_	10.1	-	24.7	_	0.985	ND	ND
BBF-SED-59	0-2	8/1/00	-	ND	32		ND	-	13	-	26	-	1.6	ND	ND
BBF-SED-59	4-6	8/1/00	_	29	84		2.2		58	1.4	560		ND	ND	ND
BBF-SED-59	8-10	8/1/00		ND	ND	-	ND		32	***	ND		1.8	ND	ND
BBF-SED-60	0-2	8/1/00	_	24	100		3.2	-	50	2.5	560	_	0.089	ND	ND
BBF-SED-60	2-4	8/1/00	-	29	150		5.4	-	65	ND	800	-	ND	ND	ND
BBF-SED-60	8-10	8/1/00		ND	ND		ND		36		11	-	0.89	ND	ND

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MUDDY RIVER RESTORATION PROJECT RIVERWAY VOLATILE PETROLEUM HYDROCARBON SEDIMENT SAMPLE ANALYSIS RESULTS (mg/kg)

Sample ID	Sample Depth (ft BGS)	Sample Date	C5-C8 Aliphatic Hydrocarbons	C9-C10 Aromatic Hydrocarbons	C9-C12 Aliphatic Hydrocarbons	Methyl tert-butyl ether	Benzene	Toluene	Ethylbenzene	m,p-Xylene	o-Xylene	Naphthalene
RW-SED-01	0-2	8/11/00	ND	3.8	11	ND	ND	ND	ND	ND	ND	0.25
RW-SED-01	4-6	8/11/00	ND	1.5	8.3	ND	ND	ND	ND	ND	ND	0.23
RW-SED-01	6-8	8/11/00	ND	1.8	8.3	ND	ND ND	ND	ND	ND	ND	ND ND
RW-SED-01	2-4	8/11/00	ND	1.8	10	ND	ND	ND	ND	ND	ND	ND
RW-SED-02	4-6	8/11/00	ND	1.0	2.3	ND	ND ND	ND	ND	ND	ND	ND
RW-SED-02	8-10	8/11/00	ND	ND ND	1.1	ND	ND	ND	ND	ND	ND	ND
RW-SED-02	0-2	8/16/00	ND	10	1.1	ND	ND	0.1	ND	0.1	ND	0.36
RW-SED-03	6-8	8/16/00	ND	ND	ND	ND	ND	ND ND	ND	ND	ND	ND ND
RW-SED-03	10-12	8/16/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
RW-SED-04	0-2	8/10/00	1.0	5.8	17	ND	ND	ND	ND	0.17	ND	0.88
RW-SED-04	4-6	8/10/00	1.4	5.2	16	ND	ND	0.11	ND	0.11	ND	0.81
RW-SED-04	12-14	8/10/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
RW-SED-05	0-2	8/14/00	1.8	5.0	17	ND	ND	0.27	ND	ND	ND	0.5
RW-SED-05	4-6	8/14/00	ND	ND	5.7	ND	ND	ND	ND	ND	ND	ND
RW-SED-05	6-8	8/14/00	ND	1.1	7.8	ND	ND	ND	ND	ND	ND	ND
RW-SED-06	0-2	8/14/00	2.6	11	29	ND	ND	ND	ND	0.11	0.12	0.91
RW-SED-06	4-6	8/14/00	ND	ND	5.6	ND	ND	ND	ND	ND	ND	ND
RW-SED-06	8-10	8/14/00	ND	ND	5.0	ND	ND	ND	ND	ND	ND	0.12
RW-SED-07	0-2	8/17/00	ND	6.2	14	ND	ND	0.13	ND	ND	ND	0.66
RW-SED-07	4-6	8/17/00	ND	2.0	12	ND	ND	ND	ND	ND	ND	0.27
RW-SED-07	6-8	8/17/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
RW-SED-08	0-2	8/18/00	3.4	8.1	12	ND	ND	ND	ND	0.12	ND	0.35
RW-SED-08	2-4	8/18/00	4.0	9.8	14	ND	ND	ND	ND	0.32	0.12	0.27
RW-SED-08	4-6	8/18/00	ND	3.0	10	ND	ND	ND	ND	ND	ND	ND
RW-SED-09	2-4	8/17/00	ND	6.6	35	ND	ND	0.13	ND	0.31	0.15	1.4
RW-SED-09	6-8	8/17/00	ND	1.9	16	ND	ND	0.12	ND	0.1	ND	0.32
RW-SED-09	10-12	8/17/00	ND	2.2	11	ND	ND	0.13	ND	ND	ND	0.43
RW-SED-11	0-2	10/19/00	ND	4.7	14	ND	ND	ND	ND	ND	ND	0.25
RW-SED-12	0-2	10/19/00	ND	5.8	10	ND	ND	ND	ND	0.14	ND	0.57
RW-SED-13	0-2	10/19/00	ND	6.3	13	ND	ND	ND	ND	ND	ND	0.28
RW-SED-16	0-2	10/19/00	4.1	16	26	ND	ND	ND	ND	0.14	0.12	0.62

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MUDDY RIVER RESTORATION PROJECT RIVERWAY VOLATILE PETROLEUM HYDROCARBON SEDIMENT SAMPLE ANALYSIS RESULTS (mg/kg)

Sample ID	Sample Depth (ft BGS)	Sample Date	C5-C8 Aliphatic Hydrocarbons	C9-C10 Aromatic Hydrocarbons	C9-C12 Aliphatic Hydrocarbons	Methyl tert-butyl ether	Benzene	Toluene	Ethylbenzene	m,p-Xylene	o-Xylene	Naphthalene
RW-SED-17	0-2	10/19/00	ND	4.5	14	ND	ND	ND	ND	0.12	ND	0.34
RW-SED-18	0-2	10/19/00	ND	5.2	15	ND	ND	ND	ND	0.10	ND	0.33
RW-SED-19	0-2	8/31/00	ND	12	ND	ND	ND	0.3	ND	0.12	0.1	0.82
RW-SED-19	2-4	8/31/00	ND	7.5	ND	ND	ND	0.27	ND	0.12	ND	0.88
RW-SED-19	4-6	8/31/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.20
RW-SED-20	0-2	8/31/00	ND	7.3	ND	ND	ND	0.22	ND	0.14	ND	0.82
RW-SED-20	2-4	8/31/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.15
RW-SED-21	0-2	8/31/00	ND	13	ND	ND	ND	0.36	ND	0.2	0.11	1.7
RW-SED-21	2-4	8/31/00	ND	3.1	ND	ND	ND	ND	ND	ND	ND	0.55
RW-SED-22	0-2	8/30/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.13
RW-SED-22	2-4	8/30/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
RW-SED-23	0-2	8/30/00	ND	1.0	ND	ND	ND	ND	ND	ND	ND	0.11
RW-SED-23	2-4	8/30/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.15
RW-SED-23	6-8	8/30/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
RW-SED-24	0-2	8/30/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.32
RW-SED-24	4-6*	8/30/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
RW-SED-25	0-2	8/30/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
RW-SED-25	2-4	8/30/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
RW-SED-26	0-2	8/30/00	ND	1.62	ND	ND	ND	0.13	ND	ND	ND	0.27
RW-SED-26	2-4	8/30/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
RW-SED-27	0-2	8/30/00	ND	ND	ND	ND	ND	0.1	ND	ND	ND	0.19
RW-SED-27	2-4	8/30/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.11
RW-SED-28	0-2	8/30/00	ND	2.0	2.9	ND	ND	ND	ND	ND	ND	0.2
RW-SED-28	2-4*	8/30/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.06
RW-SED-28	4-6	8/30/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
RW-SED-29	0-2	8/30/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.29
RW-SED-29	2-4	8/30/00	ND	1.0	ND	ND	ND	ND	ND	ND	ND	0.21
RW-SED-30	0-2	8/30/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
RW-SED-30	2-4	8/30/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
RW-SED-30	6-8	8/30/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
RW-SED-31	0-2	8/30/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.13

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MUDDY RIVER RESTORATION PROJECT RIVERWAY VOLATILE PETROLEUM HYDROCARBON SEDIMENT SAMPLE ANALYSIS RESULTS (mg/kg)

Sample ID	Sample Depth (ft BGS)	Sample Date	C5-C8 Aliphatic Hydrocarbons	C9-C10 Aromatic Hydrocarbons	C9-C12 Aliphatic Hydrocarbons	Methyl tert-butyl ether	Benzene	Toluene	Ethylbenzene	m,p-Xylene	o-Xylene	Naphthalene
RW-SED-31	2-4	8/30/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.18
RW-SED-31	4-6	8/30/00	ND	ND	ND	ND	ND	0.1	ND	ND	ND	0.18
RW-SED-32	0-2*	8/30/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.105
RW-SED-32	2-4	8/30/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.15
RW-SED-33	0-2	8/30/00	ND	1.6	ND	ND	ND	0.15	ND	ND	ND	0.37
RW-SED-33	2-4	8/30/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.18
RW-SED-34	0-2	8/28/00	ND	3.0	12.5	ND	ND	ND	ND	0.21	0.10	0.16
RW-SED-34	2-4	8/28/00	ND	ND	3.9	ND	ND	ND	ND	ND	ND	ND
RW-SED-35	0-2	8/28/00	ND	ND	2.6	ND	ND	ND	ND	ND	ND	0.19
RW-SED-35	4-6	8/28/00	ND	ND	2.4	ND	ND	ND	ND	ND	ND	ND
RW-SED-36	0-2	8/28/00	ND	ND	5.8	ND	ND	ND	ND	ND	ND	0.14
RW-SED-36	2-4	8/28/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
RW-SED-37	0-2	8/28/00	ND	1.3	11	ND	ND	ND	ND	ND	ND	0.21
RW-SED-37	2-4	8/28/00	ND	ND	8.1	ND	ND	ND	ND	ND	ND	0.38
RW-SED-38	0-2	8/28/00	ND	ND	4.4	ND	ND	ND	ND	ND	ND	0.13
RW-SED-38	2-4	8/28/00	ND	ND	ND	ND	ND	ND	ND .	ND	ND	ND
RW-SED-38	4-6	8/28/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
RW-SED-39	0-2	8/25/00	ND	ND	3.0	ND	ND	ND	ND .	ND	ND	0.12
RW-SED-39	4-6	8/25/00	ND	ND	6.0	ND	ND	ND	ND	ND	ND	ND

Notes:

-- = Not Analyzed
ND = Not Detected

* Results in table are the average of two duplicate sample results

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MUDDY RIVER RESTORATION PROJECT RIVERWAY EXTRACTABLE PETROLEUM HYDROCARBON SEDIMENT SAMPLE ANALYSIS RESULTS (mg/kg)

Sample ID	Sample Depth (ft BGS)	Sample Date	C11-C22 Aromatic Hydrocarbons	C19-C36 Aliphatic Hydrocarbons	C9-C18 Aliphatic Hydrocarbons	2-Methyl- naphthalene	Acenaphthene	Acenaphthylene	Anthracene	Benzo(a) anthracene	Benzo(a)pyrene	Benzo(b) fluoranthene	Benzo(g,h,i) perylene	Benzo(k) fluoranthene	Chrysene	Dibenz(a,ħ) anthracene
RW-SED-01	0-2	8/11/00	420	524	ND	ND	3.18	ND	6.13	14.2	12.2	13	10.3	9.36	18.2	2.59
RW-SED-01	4-6	8/11/00	105	ND	ND	ND	0.63	ND	1.31	2.66	2.3	2.1	1.4	1.7	3.1	ND
RW-SED-01	6-8	8/11/00	ND	ND	ND	ND	ND	ND	0.53	0.85	ND	0.8	ND	0.55	1.06	ND
RW-SED-02	2-4	8/11/00	ND	141	ND	ND	ND	ND	0.81	1.9	1.84	1.65	1.48	1.5	2.26	ND
RW-SED-02	4-6	8/11/00	ND	ND	ND	ND	ND	ND	1.31	2.93	ND	2.86	2.07	1.95	3.5	ND
RW-SED-02	8-10	8/11/00	ND	ND	ND	ND	ND	ND	0.75	1.35	1.27	1.35	1.11	1.09	1.74	ND
RW-SED-03	0-2	8/16/00	ND	ND	ND	ND	ND	ND	1.02	1.56	1.49	1.43	1.77	1.1	1.82	ND
RW-SED-03	6-8	8/16/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
RW-SED-03	10-12	8/16/00	ND	428	1100	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
RW-SED-04	0-2	8/10/00	725	1090	250	0.84	1.58	ND	3.37	10.9	10.2	10.7	20.3	7.79	13.2	2.02
RW-SED-04	4-6	8/10/00	1230	1570	320	1.64	1.8	ND	2.86	10.1	8.06	8.96	9.88	6.97	12.8	1.93
RW-SED-04	12-14	8/10/00	ND	206	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
RW-SED-05	0-2	8/14/00	836	1020	130	ND	1.31	ND	2.8	9.38	9.02	8.6	8.63	6.31	12.7	1.81
RW-SED-05	4-6	8/14/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
RW-SED-05	6-8	8/14/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
RW-SED-06	0-2	8/14/00	472	915	470	2.48	1.7	ND	2.08	6.56	1.36	7.02	10.3	4.23	8.46	1.36
RW-SED-06	4-6	8/14/00	223	309	100	0.94	1.2	ND	2.26	5.12	4.87	4.7	4.24	3.47	6.51	0.89
RW-SED-06	8-10	8/14/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
RW-SED-07	0-2	8/17/00	199	385	110	ND	ND	ND	0.91	4.27	3.7	3.72	3.75	2.71	4.79	0.56
RW-SED-07	4-6	8/17/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
RW-SED-07	6-8	8/17/00	ND	ND	ND .	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
RW-SED-08	0-2	8/18/00	ND	ND	ND	ND	ND	ND	ND	1.33	1.04	1.09	1.5	0.77	1.63	ND
RW-SED-08	2-4	8/18/00	ND	138	ND	ND	ND	ND	0.62	2.22	1.99	1.86	2.29	1.53	2.77	0.3
RW-SED-08	4-6	8/18/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
RW-SED-09	2-4	8/17/00	897	1490	820	ND	ND	ND	0.81	3.06	3.13	2.72	5.56	2.22	4.46	ND
RW-SED-09	6-8	8/17/00	252	227	ND	ND	ND	ND	0.95	3.47	3.41	3.29	2.38	2.62	4.66	0.58
RW-SED-09	10-12	8/17/00	258	216	ND	ND	ND	ND	1.13	3.75	3.78	3.75	2.96	2.68	4.99	0.67
RW-SED-11	0-2	10/19/00	400	1700	400	ND	0.53	ND	1.7	4.9	4.6	3.7	6.9	3.7	6.0	1.1
RW-SED-12	0-2	10/19/00	380	1200	220	ND	ND	ND	1.8	4.5	4.2	4.4	6.0	3.4	5.8	0.92
RW-SED-13	0-2	10/19/00	780	1400	1200	1.6	0.72	ND	2.4	7.1	6.4	5.4	15	5.3	8.9	1.4
RW-SED-16	0-2	10/19/00	860	3100	1400	2.2	ND	ND	2.5	6.6	6.5	7.0	22	5.2	8.9	1.4

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MUDDY RIVER RESTORATION PROJECT RIVERWAY

EXTRACTABLE PETROLEUM HYDROCARBON SEDIMENT SAMPLE ANALYSIS RESULTS (mg/kg)

Sample ID	Sample Depth (ft BGS)	Sample Date	C11-C22 Aromatic Hydrocarbons	C19-C36 Aliphatic Hydrocarbons	C9-C18 Aliphatic Hydrocarbons	2-Methyl- naphthalene	Acenaphthene	Acenaphthylene	Anthracene	Benzo(a) anthracene	Benzo(a)pyrene	Benzo(b) fluoranthene	Benzo(g,h,i) perylene	Benzo(k) fluoranthene	Chrysene	Dibenz(a,h) anthracene
RW-SED-17	0-2	10/19/00	540	1400	380	ND	ND	ND								
RW-SED-18	0-2	10/19/00	730	2000	610	1.7	3.8	0.72	7.2	7.6	5.6	5.7	11	4.6	8.0	1.1
RW-SED-19	0-2	8/31/00	830	1300	120	2.3	5.6	ND	11	20	20	22	18	13	25	4.3
RW-SED-19	2-4	8/31/00	1000	1500	160	2.7	5.6	ND	9.7	30	20	28	20	17	36	5.5
RW-SED-19	4-6	8/31/00	210	130	ND	ND	ND	ND		29	21	30	21	18	37	21
RW-SED-20	0-2	8/31/00	700	1400	160	2.1	3.2	0.64	1.5	5.9	1.4	6.5	5.0	3.7	7.2	1.4
RW-SED-20	2-4	8/31/00	ND	ND	ND	ND	ND	ND	ND ND	17	17	19	14	11	23	3.2
RW-SED-21	0-2	8/31/00	1100	2000	320	1.6	2.0	ND	3.7	1.3	1.2	1.1	1.6	0.81	1.7	ND
RW-SED-21	2-4	8/31/00	160	220	ND ND	ND	ND	ND	0.92	2.6	17	17	19	12	23	ND
RW-SED-22	0-2	8/30/00	ND	ND	ND	ND	ND	ND	ND		2.4	2.3	2.8	1.7	3.2	0.51
RW-SED-22	2-4	8/30/00	ND	ND	ND	ND	ND	ND	ND	ND ND	ND ND	ND	ND	ND	ND	ND
RW-SED-23	0-2	8/30/00	ND	ND	ND	ND	ND	ND	ND	0.68	ND ND	ND	ND	ND	ND	ND
RW-SED-23	2-4	8/30/00	ND	ND	ND	ND	ND	ND	ND	ND	ND UN	0.62 ND	0.94	ND	0.82	ND
RW-SED-23	6-8	8/30/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
RW-SED-24	0-2	8/30/00	128	127	ND	ND	ND	ND	0.76	3.78	3.38	3.31	ND 2.86	ND	ND	ND
RW-SED-24	4-6*	8/30/00	ND	ND	ND	ND	ND	ND	ND	ND	3.38 ND	3.31 ND	2.86 ND	2.64	4.56	0.69
RW-SED-25	0-2	8/30/00	ND	131	ND	ND	ND	ND	ND	1.09	0.96	ND	1.53	ND	ND	ND
RW-SED-25	2-4	8/30/00	ND	ND	ND	ND	ND	ND	ND	ND	0.96 ND	ND	1.53 ND	ND	1.32	ND
RW-SED-26	0-2	8/30/00	268	480	130	ND	ND	ND	0.81	4.02	2.98	3.17		ND	ND	ND
RW-SED-26	2-4	8/30/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND ND	4.17 ND	2.57 ND	5.57	0.57
RW-SED-27	0-2	8/30/00	1460	1120	560	ND	0.79	ND	1.11	4.72	3.91	ND ND	9.05	ND ND	ND	ND
RW-SED-27	2-4	8/30/00	329	399	130	ND	ND	ND	0.79	3,72	2.72	ND	3.88	ND	8.01	ND
RW-SED-28	0-2	8/30/00	165	379	140	ND	ND	ND	0.75	1.91	1.78	1.98	1.5		4.52	ND
RW-SED-28	2-4*	8/30/00	133	360.5	ND	ND	ND	ND	0.29	2.215	2.02	2.255		1.18	2.62	ND
RW-SED-28	4-6	8/30/00	ND	ND	ND	ND	ND	ND	ND	ND ND	ND	2.233 ND	1.815 ND	1.445	2.895	0.25
RW-SED-29	0-2	8/30/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND ND	ND ND	ND	ND
RW-SED-29	2-4	8/30/00	299	550	300	ND	ND	ND	0.57	2.1	1.91	1.95	2.08	1.31	ND 2.81	ND ND
RW-SED-30	0-2	8/30/00	ND	ND	ND	ND	ND	ND	ND	ND ND	ND	ND	2.08 ND	1.31 ND	2.81 ND	ND ND
RW-SED-30	2-4	8/30/00	129	224	ND	ND	ND	ND	ND	1.21	1.03	1.17	7.9	0.87	1.44	ND
RW-SED-30	6-8	8/30/00	ND	ND	ND	ND	ND	ND	ND	ND ND	ND	ND	ND ND	ND	1.44 ND	ND
RW-SED-31	0-2	8/30/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	1.24	ND	ND	ND

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MUDDY RIVER RESTORATION PROJECT RIVERWAY EXTRACTABLE PETROLEUM HYDROCARBON SEDIMENT SAMPLE ANALYSIS RESULTS (mg/kg)

Sample ID	Sample Depth (ft BGS)	Sample Date	C11-C22 Aromatic Hydrocarbons	C19-C36 Aliphatic Hydrocarbons	C9-C18 Aliphatic Hydrocarbons	2-Methyl- naphthalene	Acenaphthene	Acenaphthylene	Anthracene	Benzo(a) anthracene	Benzo(a)pyrene	Benzo(b) fluoranthene	Benzo(g,h,i) perylene	Benzo(k) fluoranthene	Chrysene	Dibenz(a,h) anthracene
RW-SED-31	2-4	8/30/00	277	629	130	ND	ND	ND	ND	2.31	2.12	ND	3.63	ND	3.25	0.5
RW-SED-31	4-6	8/30/00	ND	138	ND	ND	ND	ND	ND	1	0.75	0.87	0.9	0.5	1.23	ND ND
RW-SED-32	0-2*	8/30/00	69.5	104.5	ND	ND	ND	ND	ND	0.685	0.61	0.61	1	0.525	0.925	ND
RW-SED-32	2-4	8/30/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
RW-SED-33	0-2	8/30/00	1290	2360	1300	ND	ND	ND	1.27	6.39	7.17	7.25	10.9	4.68	9.39	ND
RW-SED-33	2-4	8/30/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
RW-SED-34	0-2	8/28/00	110	2820	650	1.94	1.5	ND	2.16	13.5	11.7	13.9	16.1	8.32	17.3	ND
RW-SED-34	2-4	8/28/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
RW-SED-35	0-2	8/28/00	1440	4920	1400	3.35	2.03	ND	2.36	11.4	11.9	11	19.4	9.89	16.6	ND
RW-SED-35	4-6	8/28/00	149	222	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
RW-SED-36	0-2	8/28/00	1210	2820	400	1.47	1.52	ND	2.63	14	14.2	14.1	17.7	11.6	19.5	ND
RW-SED-36	2-4	8/28/00	ND	177	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
RW-SED-37	0-2	8/28/00	971	1030	1300	ND	ND	ND	1.02	3.9	4.16	4.9	6.52	3.51	5.54	0.83
RW-SED-37	2-4	8/28/00	384	951	170	ND	ND	ND	0.77	4.12	3.89	4.16	6.33	2.46	5.8	0.86
RW-SED-38	0-2	8/28/00	550	2070	340	ND	ND	ND	1.26	5.28	5.7	6.07	8.61	4.29	7.71	1.15
RW-SED-38	2-4	8/28/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
RW-SED-38	4-6	8/28/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
RW-SED-39	0-2	8/25/00	772	522	200	ND	ND	ND	0.87	3.54	2.73	2.97	ND	2.54	4.47	ND
RW-SED-39	4-6	8/25/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

Notes

- = Not Analyzed

ND = Not Detected

* Results in table are the average of two

duplicate sample results

MUDDY RIVER RESTORATION PROJECT RIVERWAY EXTRACTABLE PETROLEUM HYDROCARBON SEDIMENT SAMPLE ANALYSIS RESULTS (mg/kg)

Sample ID	Sample Depth (ft BGS)	Sample Date	Fluoranthene	Fluorene	Indeno(1,2,3- cd)pyrene	Naphthalene	Phenanthrene	Pyrene
RW-SED-01	0-2	8/11/00	33.34	3.66	8.29	0.88	30.9	27.2
RW-SED-01	4-6	8/11/00	5.7	0.62	1.3	ND	5.2	5.3
RW-SED-01	6-8	8/11/00	2.0	ND	ND	ND	1.09	1.53
RW-SED-02	2-4	8/11/00	3.9	ND	1.2	ND	2.1	3.15
RW-SED-02	4-6	8/11/00	7.09	ND	1.68	ND	4.97	5.81
RW-SED-02	8-10	8/11/00	3.46	ND	0.82	ND	2.22	2.7
RW-SED-03	0-2	8/16/00	3.63	ND	0.96	ND	2.19	2.87
RW-SED-03	6-8	8/16/00	ND	ND	ND	ND	ND	ND
RW-SED-03	10-12	8/16/00	ND	ND	ND	ND	ND	ND
RW-SED-04	0-2	8/10/00	23.6	1.65	6.69	1.31	15.5	19.2
RW-SED-04	4-6	8/10/00	18.8	2.31	6.3	1.01	12.4	17.2
RW-SED-04	12-14	8/10/00	ND	ND	ND	ND	ND	ND
RW-SED-05	0-2	8/14/00	18.9	1.8	6.53	ND	11.4	17.7
RW-SED-05	4-6	8/14/00	ND	ND	ND	ND	ND	ND
RW-SED-05	6-8	8/14/00	ND	ND	ND	ND	ND	ND
RW-SED-06	0-2	8/14/00	14.6	1.82	4.46	ND	10.2	11.9
RW-SED-06	4-6	8/14/00	12.1	1.25	3.17	ND	9.49	10.1
RW-SED-06	8-10	8/14/00	ND	ND	ND	ND	ND	ND
RW-SED-07	0-2	8/17/00	8.29	ND	2.33	ND	5.15	7.1
RW-SED-07	4-6	8/17/00	ND	ND	ND '	ND	ND	ND
RW-SED-07	6-8	8/17/00	ND	ND	ND	ND	ND	ND
RW-SED-08	0-2	8/18/00	2.45	ND	0.6	ND	1.18	2.09
RW-SED-08	2-4	8/18/00	4.76	ND	1.16	ND	2.72	4.05
RW-SED-08	4-6	8/18/00	ND	ND	ND	ND	ND	ND
RW-SED-09	2-4	8/17/00	5.84	ND	ND	ND	3.37	5.51
RW-SED-09	6-8	8/17/00	8.35	ND	2.23	ND	4.12	7.09
RW-SED-09	10-12	8/17/00	9.07	0.76	2.43	ND	4.85	7.69
RW-SED-11	0-2	10/19/00	8.4	0.74	3.4	ND	4.6	8.0
RW-SED-12	0-2	10/19/00	7.7	ND	3.1	ND	3.4	7.5
RW-SED-13	0-2	10/19/00	12	0.87	4.4	ND	5.6	12
RW-SED-16	0-2	10/19/00	14	0.98	4.9	0.54	8.3	13

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$\label{eq:muddy} \mbox{MUDDY RIVER RESTORATION PROJECT} \\ \mbox{RIVERWAY} \\ \mbox{EXTRACTABLE PETROLEUM HYDROCARBON SEDIMENT SAMPLE ANALYSIS RESULTS (mg/kg)}$

Sample ID	Sample Depth (ft BGS)	Sample Date	Fluoranthene	Fluorene	Indeno(1,2,3- cd)pyrene	Naphthalene	Phenanthrene	Pyrene
RW-SED-17	0-2	10/19/00	12	0.81	4.2	ND	5.9	11
RW-SED-17	0-2	10/19/00	46	3.8	14	2.0	36	38
RW-SED-19	0-2	8/31/00	65	5.8	18	0.82	52	50
RW-SED-19	2-4	8/31/00	66	5.7	20	0.82	52	54
RW-SED-19	4-6	8/31/00	16	ND	4.9	ND	ND ND	12
RW-SED-19	0-2	8/31/00	40	3.9	12	0.52	34	35
RW-SED-20	2-4	8/31/00	2.5	ND	ND ND	ND	1.3	2.1
RW-SED-21	0-2	8/31/00	34	3.2	13	1.1	1.5	30
RW-SED-21	2-4	8/31/00	5.6	ND	2.0	ND	3.4	4.7
RW-SED-21	0-2	8/30/00	1.38	ND	ND ND	ND	ND	1.25
RW-SED-22	2-4	8/30/00	ND	ND	ND	ND	ND	ND
RW-SED-23	0-2	8/30/00	1.28	ND	ND	ND	0.61	1.11
RW-SED-23	2-4	8/30/00	ND	ND	ND	ND	ND	ND
RW-SED-23	6-8	8/30/00	ND	ND	ND	ND	ND	ND
RW-SED-24	0-2	8/30/00	6.39	ND	2.13	ND	1.5	5.47
RW-SED-24	4-6*	8/30/00	ND	ND	ND	ND	ND	ND
RW-SED-25	0-2	8/30/00	2.18	ND	0.65	ND	1.18	1.94
RW-SED-25	2-4	8/30/00	ND	ND	ND	ND	ND	ND
RW-SED-26	0-2	8/30/00	7	ND	2.15	ND	3.74	6.73
RW-SED-26	2-4	8/30/00	ND	ND	ND	ND	ND	ND .
RW-SED-27	0-2	8/30/00	9.35	1.19	2.34	ND	5.15	8.8
RW-SED-27	2-4	8/30/00	6.52	ND	1.75	ND	3.65	5.97
RW-SED-28	0-2	8/30/00	4.01	ND	1.17	ND	1.95	3.68
RW-SED-28	2-4*	8/30/00	4.48	ND	1.305	ND	1.89	4.005
RW-SED-28	4-6	8/30/00	ND	ND	ND	ND	ND	ND
RW-SED-29	0-2	8/30/00	ND	ND	ND	ND	ND	ND
RW-SED-29	2-4	8/30/00	4.32	ND	1.25	ND	2.66	3.9
RW-SED-30	0-2	8/30/00	ND	ND	ND	ND	ND	ND
RW-SED-30	2-4	8/30/00	2.04	ND	ND	ND	ND	2
RW-SED-30	6-8	8/30/00	ND	ND	ND	ND	ND	ND
RW-SED-31	0-2	8/30/00	1.18	ND	ND	ND	ND	1.12

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MUDDY RIVER RESTORATION PROJECT RIVERWAY

EXTRACTABLE PETROLEUM HYDROCARBON SEDIMENT SAMPLE ANALYSIS RESULTS (mg/kg)

Sample ID	Sample Depth (ft BGS)	Sample Date	Fluoranthene	Fluorene	Indeno(1,2,3- cd)pyrene	Naphthalene	Phenanthrene	Pyrene
RW-SED-31	2-4	8/30/00	4.13	ND	1.47	ND	2.12	4.07
RW-SED-31	4-6	8/30/00	1.6	ND	0.55	ND	ND	1.56
RW-SED-32	0-2*	8/30/00	1.375	ND	ND	ND	0.65	1.29
RW-SED-32	2-4	8/30/00	ND	ND	ND	ND	ND	ND
RW-SED-33	0-2	8/30/00	12.5	ND	5.31	ND	5.42	11.9
RW-SED-33	2-4	8/30/00	ND	ND	ND	ND	ND	ND
RW-SED-34	0-2	8/28/00	20.8	2.13	9.55	ND	10.2	19
RW-SED-34	2-4	8/28/00	ND	ND	ND	ND	ND	ND
RW-SED-35	0-2	8/28/00	21.9	1.67	9.63	0.78	11.5	20.1
RW-SED-35	4-6	8/28/00	ND	ND	ND	ND	ND	ND
RW-SED-36	0-2	8/28/00	25	2.4	10.6	1.03	13	23.2
RW-SED-36	2-4	8/28/00	ND	ND	ND	ND	ND	ND
RW-SED-37	0-2	8/28/00	8.41	ND	2.99	ND	4.44	8.3
RW-SED-37	2-4	8/28/00	7.51	ND	2.75	ND	3.63	6,8
RW-SED-38	0-2	8/28/00	10.6	1.1	4.16	ND	6.07	10.5
RW-SED-38	2-4	8/28/00	1.13	ND	ND	ND	ND	1.09
RW-SED-38	4-6	8/28/00	ND	ND	ND	ND	ND	ND
RW-SED-39	0-2	8/25/00	5.58	ND	1.78	ND	2.52	5.52
RW-SED-39	4-6	8/25/00	ND	ND	ND	ND	ND	ND

Notes:

-- = Not Analyzed

ND = Not Detected

* Results in table are the average of two duplicate sample results

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MUDDY RIVER RESTORATION PROJECT RIVERWAY PCB SEDIMENT SAMPLE ANALYSIS RESULTS (mg/kg)

	Sample								
	Depth	Sample	Aroclor						
Sample ID	(ft BGS)	Date	1016	1221	1232	1242	1248	1254	1260
RW-SED-01	0-2	8/11/00	ND						
RW-SED-01	4-6	8/11/00	ND						
RW-SED-01	6-8	8/11/00	ND						
RW-SED-02	2-4	8/11/00				man			
RW-SED-02	4-6	8/11/00							
RW-SED-02	8-10	8/11/00							
RW-SED-03	0-2	8/16/00	ND						
RW-SED-03	6-8	8/16/00	ND						
RW-SED-03	10-12	8/16/00	ND						
RW-SED-04	0-2	8/10/00							
RW-SED-04	4-6	8/10/00	***				***		
RW-SED-04	12-14	8/10/00							
RW-SED-05	0-2	8/14/00	ND						
RW-SED-05	4-6	8/14/00	ND						
RW-SED-05	6-8	8/14/00	ND	ND	ND	ND !	ND	ND	ND
RW-SED-06	0-2	8/14/00							
RW-SED-06	4-6	8/14/00	_					***	
RW-SED-06	8-10	8/14/00							****
RW-SED-07	0-2	8/17/00	ND						
RW-SED-07	4-6	8/17/00	ND						
RW-SED-07	6-8	8/17/00	ND	ND	ND	ND.	ND	ND	ND
RW-SED-08	0-2	8/18/00			***		-		
RW-SED-08	2-4	8/18/00			- 1	000		***	
RW-SED-08	4-6	8/18/00		time		****			
RW-SED-09	2-4	8/17/00	ND						
RW-SED-09	6-8	8/17/00	ND						
RW-SED-09	10-12	8/17/00	ND						
RW-SED-11	0-2	10/19/00	ND						
RW-SED-12	0-2	10/19/00	ND						
RW-SED-13	0-2	10/19/00	ND						
RW-SED-16	0-2	10/19/00	ND						
RW-SED-17	0-2	10/19/00	ND						
RW-SED-18	0-2	10/19/00	ND						
RW-SED-19	0-2	8/31/00	ND	ND	ND	ND	ND	ND	ND .

MUDDY RIVER RESTORATION PROJECT RIVERWAY PCB SEDIMENT SAMPLE ANALYSIS RESULTS (mg/kg)

	Sample								
	Depth	Sample	Aroclor						
Sample ID	(ft BGS)	Date	1016	1221	1232	1242	1248	1254	1260
RW-SED-19	2-4	8/31/00	ND						
RW-SED-19	4-6	8/31/00	ND						
RW-SED-20	0-2	8/31/00							
RW-SED-20	2-4	8/31/00							
RW-SED-21	0-2	8/31/00	ND						
RW-SED-21	2-4	8/31/00	ND						
RW-SED-22	0-2	8/30/00			-				
RW-SED-22	2-4	8/30/00	_						
RW-SED-23	0-2	8/30/00	ND						
RW-SED-23	2-4	8/30/00	ND						
RW-SED-23	6-8	8/30/00	ND						
RW-SED-24	0-2	8/30/00							
RW-SED-24	4-6	8/30/00			***			-	
RW-SED-25	0-2	8/30/00	ND						
RW-SED-25	2-4	8/30/00	ND						
RW-SED-26	0-2	8/30/00							
RW-SED-26	2-4	8/30/00		_					_
RW-SED-27	0-2	8/30/00	ND						
RW-SED-27	2-4	8/30/00	ND	ND	ND	ND	ND	ND.	ND
RW-SED-28	0-2	8/30/00							
RW-SED-28	2-4	8/30/00					***		
RW-SED-28	4-6	8/30/00							_
RW-SED-29	0-2	8/30/00	ND						
RW-SED-29	2-4	8/30/00	ND						
RW-SED-30	0-2	8/30/00							
RW-SED-30	2-4	8/30/00							
RW-SED-30	6-8	8/30/00	_						
RW-SED-31	0-2	8/30/00	ND						
RW-SED-31	2-4	8/30/00	ND						
RW-SED-31	4-6	8/30/00	ND						
RW-SED-32	0-2	8/30/00				10 0000			
RW-SED-32	2-4	8/30/00							
RW-SED-33	0-2	8/30/00	ND						
RW-SED-33	2-4	8/30/00	ND						

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	Sample								
	Depth	Sample	Aroclor						
Sample ID	(ft BGS)	Date	1016	1221	1232	1242	1248	1254	1260
RW-SED-34	0-2	8/28/00							
RW-SED-34	2-4	8/28/00							
RW-SED-35	0-2	8/28/00	ND						
RW-SED-35	4-6	8/28/00	ND						
RW-SED-36	0-2	8/28/00						****	
RW-SED-36	2-4	8/28/00							
RW-SED-37	0-2	8/28/00	ND						
RW-SED-37	2-4	8/28/00	ND						
RW-SED-38	0-2	8/28/00		***	****				
RW-SED-38	2-4	8/28/00							
RW-SED-38	4-6	8/28/00		****					
RW-SED-39	0-2	8/25/00	ND						
RW-SED-39	4-6	8/25/00	ND						

Notes:

--- = Not Analyzed ND = Not Detected

MUDDY RIVER RESTORATION PROJECT RIVERWAY PESTICIDE SEDIMENT SAMPLE ANALYSIS RESULTS (mg/kg)

	Sample		Γ										Endo-	
	Depth	Sample					alpha-	}			Endo-	Endo-	sulfan	
Sample ID	(ft BGS)	Date	4,4'-DDD	4,4'-DDE	4,4'-DDT	Aldrin	BHC	beta-BHC	delta-BHC	Dieldrin	sulfan I	sulfan II	sulfate	Endrin
RW-SED-01	0-2	8/11/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
RW-SED-01	4-6	8/11/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
RW-SED-01	6-8	8/11/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
RW-SED-02	2-4	8/11/00			****		***							
RW-SED-02	4-6	8/11/00	engen	***				-	-	ment				_
RW-SED-02	8-10	8/11/00		-		`								-
RW-SED-03	0-2	8/16/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND .
RW-SED-03	6-8	8/16/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
RW-SED-03	10-12	8/16/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
RW-SED-04	0-2	8/10/00					deduces						***	_
RW-SED-04	4-6	8/10/00												
RW-SED-04	12-14	8/10/00			***		***	_						
RW-SED-03	0-2	8/14/00	1.97	ND	0.18	ND	ND	ND	ND	ND	ND	ND	ND	ND
RW-SED-05	4-6	8/14/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
RW-SED-05	6-8	8/14/00	0.01	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
RW-SED-06	0-2	8/14/00	-								-	***		
RW-SED-06	4-6	8/14/00					***		_					
RW-SED-06	8-10	8/14/00		***					_		_			
RW-SED-07	0-2	8/17/00	2.9	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
RW-SED-07	4-6	8/17/00	ND .	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
RW-SED-07	6-8	8/17/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
RW-SED-08	0-2	8/18/00		***		_								
RW-SED-08	2-4	8/18/00	_		-		-				whomas			
RW-SED-08	4-6	8/18/00	_	quanta.										
RW-SED-09	2-4	8/17/00	1.49	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
RW-SED-09	6-8	8/17/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
RW-SED-09	10-12	8/17/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
RW-SED-11	0-2	10/19/00	210	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
RW-SED-12	0-2	10/19/00	240	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
RW-SED-13	0-2	10/19/00	78	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
RW-SED-16	0-2	10/19/00	200	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND .
RW-SED-17	0-2	10/19/00	330	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
RW-SED-18	0-2	10/19/00	240	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
RW-SED-19	0-2	8/31/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

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MUDDY RIVER RESTORATION PROJECT RIVERWAY PESTICIDE SEDIMENT SAMPLE ANALYSIS RESULTS (mg/kg)

Sample ID	Sample Depth (ft BGS)	Sample Date	4,4'-DDD	4,4′-DDE	4,4′-DDT	Aldrin	alpha- BHC	beta-BHC	delta-BHC	Dieldrin	Endo- sulfan I	Endo- sulfan II	Endo- sulfan sulfate	Endrin
RW-SED-19	2-4	8/31/00	0.57	ND	ND	ND	177	N/D) ID).TD) III)			
RW-SED-19	4-6	8/31/00	ND				ND	ND	ND	ND	ND	ND	ND	ND
RW-SED-19	0-2	8/31/00		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
RW-SED-20	2-4	8/31/00											to make	
RW-SED-20	0-2	8/31/00	1.0	>IID					0000 NED					
RW-SED-21	2-4		1.0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
RW-SED-21	0-2	8/31/00	0.099	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
RW-SED-22		8/30/00		****	_		***							
RW-SED-22 RW-SED-23	2-4	8/30/00		3.700										
RW-SED-23	0-2 2-4	8/30/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
RW-SED-23	6-8	8/30/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
RW-SED-23	0-8	8/30/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
RW-SED-24	4-6	8/30/00												
RW-SED-24 RW-SED-25	0-2	8/30/00	0.17	, DD										
RW-SED-25		8/30/00	0.17	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
RW-SED-25	2-4 0-2	8/30/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
RW-SED-26	2-4	8/30/00					-				-		***	
RW-SED-20	0-2	8/30/00												
RW-SED-27		8/30/00	2.8	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
RW-SED-27	2-4	8/30/00	0.913	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	0-2	8/30/00		-			****							-
RW-SED-28	2-4	8/30/00	***					***						_
RW-SED-28 RW-SED-29	4-6	8/30/00												
	0-2	8/30/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
RW-SED-29	2-4	8/30/00	1.18	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
RW-SED-30	0-2	8/30/00				_							4447	
RW-SED-30 RW-SED-30	2-4	8/30/00		-				_						
RW-SED-30	6-8	8/30/00	0.0000						***					
	0-2	8/30/00	0.0999	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
RW-SED-31	2-4	8/30/00	1.49	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
RW-SED-31	4-6	8/30/00	0.27	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
RW-SED-32	0-2	8/30/00	***											
RW-SED-32	2-4	8/30/00		***	_									
RW-SED-33	0-2	8/30/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
RW-SED-33	2-4	8/30/00	0.0461	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

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MUDDY RIVER RESTORATION PROJECT RIVERWAY PESTICIDE SEDIMENT SAMPLE ANALYSIS RESULTS (mg/kg)

Sample ID	Sample Depth (ft BGS)	Sample Date	4,4′-DDD	4,4′-DDE	4,4'-DDT	Aldrin	alpha- BHC	beta-BHC	delta-BHC	Dieldrin	Endo- sulfan I	Endo- sulfan II	Endo- sulfan sulfate	Endrin
D.771 (2000 4.1														
RW-SED-34	0-2	8/28/00	_		-									
RW-SED-34	2-4	8/28/00											mmo.	
RW-SED-35	0-2	8/28/00	4.4	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
RW-SED-35	4-6	8/28/00	0.13	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
RW-SED-36	0-2	8/28/00					-					8600		
RW-SED-36	2-4	8/28/00		man i	***				***				***	
RW-SED-37	0-2	8/28/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
RW-SED-37	2-4	8/28/00	0.52	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
RW-SED-38	0-2	8/28/00		***	-	_		***		8440				
RW-SED-38	2-4	8/28/00							_				***	
RW-SED-38	4-6	8/28/00			***		_	***						
RW-SED-39	0-2	8/25/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
RW-SED-39	4-6	8/25/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

Notes:

--- = Not Analyzed
ND = Not Detected

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MUDDY RIVER RESTORATION PROJECT RIVERWAY PESTICIDE SEDIMENT SAMPLE ANALYSIS RESULTS (mg/kg)

Sample ID	Sample Depth (ft BGS)	Sample Date	Endrin aldehyde	Endrin ketone	gamma- BHC	Hepta-chlor	Heptachlor epoxide	Methoxy-	Toxaphene	Chlordane
RW-SED-01	0-2	8/11/00	ND	ND	ND	ND	ND	ND	ND	ND
RW-SED-01	4-6	8/11/00	ND	ND	ND	ND	ND	ND	ND	ND
RW-SED-01	6-8	8/11/00	ND	ND	ND	ND	ND	ND	ND	ND
RW-SED-02	2-4	8/11/00		·	-					***
RW-SED-02	4-6	8/11/00		***			derderda.	***		000
RW-SED-02	8-10	8/11/00			-					
RW-SED-03	0-2	8/16/00	ND	ND	ND	ND	ND	ND	ND	ND
RW-SED-03	6-8	8/16/00	ND	ND	ND	ND	ND	ND	ND	ND
RW-SED-03	10-12	8/16/00	ND	ND	ND	ND	ND	ND	ND	ND
RW-SED-04	0-2	8/10/00					900	irea.		112
RW-SED-04	4-6	8/10/00	***		***	man-1-				
RW-SED-04	12-14	8/10/00			-					
RW-SED-05	0-2	8/14/00	ND	ND	ND	ND	ND	ND	ND	ND
RW-SED-05	4-6	8/14/00	ND	ND	ND	ND	ND	ND	ND	ND
RW-SED-05	6-8	8/14/00	ND	ND	ND	ND	ND	ND	ND	ND
RW-SED-06	0-2	8/14/00		Green	aune .	800	***		110	
RW-SED-06	4-6	8/14/00			800		***			
RW-SED-06	8-10	8/14/00		***	***		0.000			***
RW-SED-07	0-2	8/17/00	ND	ND	ND	ND	ND	ND	ND	ND
RW-SED-07	4-6	8/17/00	ND	ND	ND	ND	ND	ND	ND	ND
RW-SED-07	6-8	8/17/00	ND	ND	ND	ND	ND	ND	ND	ND
RW-SED-08	0-2	8/18/00	man .		****		000	****		***
RW-SED-08	2-4	8/18/00		9480	8000		***			
RW-SED-08	4-6	8/18/00		****	20040			0.000		
RW-SED-09	2-4	8/17/00	ND	ND	ND	ND	ND	ND	ND	ND
RW-SED-09	6-8	8/17/00	ND	ND	ND	ND	ND	ND	ND	ND
RW-SED-09	10-12	8/17/00	ND	ND	ND	ND	ND	ND	ND	ND
RW-SED-11	0-2	10/19/00	ND	ND	ND.	ND	ND	ND	ND	ND
RW-SED-12	0-2	10/19/00	ND	ND	ND	ND	ND	ND	ND	ND
RW-SED-13	0-2	10/19/00	ND	ND	ND	ND	ND	ND	ND	ND
RW-SED-16	0-2	10/19/00	ND	ND	ND	ND	ND	ND	ND	ND
RW-SED-17	0-2	10/19/00	ND	ND	ND	ND	ND	ND	ND	ND
RW-SED-18	0-2	10/19/00	ND	ND	ND	ND	ND	ND	ND	ND
RW-SED-19	0-2	8/31/00	ND	ND	ND	ND	ND	ND	ND	ND

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MUDDY RIVER RESTORATION PROJECT RIVERWAY PESTICIDE SEDIMENT SAMPLE ANALYSIS RESULTS (mg/kg)

Sample ID	Sample Depth (ft BGS)	Sample Date	Endrin aldehyde	Endrin ketone	gamma- BHC	Hepta-chlor	Heptachlor epoxide	Methoxy-	Toxaphene	Chlordane
RW-SED-19	2-4	8/31/00	ND	ND	ND	ND	ND	ND	ND	ND
RW-SED-19	4-6	8/31/00	ND	ND	ND	ND	ND	ND	ND	ND
RW-SED-20	0-2	8/31/00							140	-
RW-SED-20	2-4	8/31/00								
RW-SED-21	0-2	8/31/00	ND	ND	ND	ND	ND	ND	ND	ND
RW-SED-21	2-4	8/31/00	ND	ND	ND	ND	ND	ND	ND	ND
RW-SED-22	0-2	8/30/00		_			140	ND	110	ND
RW-SED-22	2-4	8/30/00			_					
RW-SED-23	0-2	8/30/00	ND	ND	ND	ND	ND	ND	ND	ND
RW-SED-23	2-4	8/30/00	ND	ND	ND	ND	ND	ND	ND	ND
RW-SED-23	6-8	8/30/00	ND	ND	ND	ND	ND	ND	ND	ND
RW-SED-24	0-2	8/30/00					110			
RW-SED-24	4-6	8/30/00						Aprenia.		
RW-SED-25	0-2	8/30/00	ND	ND	ND	ND	ND	ND	ND	ND
RW-SED-25	2-4	8/30/00	ND	ND	ND	ND	ND	ND	ND	ND
RW-SED-26	0-2	8/30/00						***		
RW-SED-26	2-4	8/30/00						***		
RW-SED-27	0-2	8/30/00	ND	ND	ND	ND	ND	ND	ND	ND
RW-SED-27	2-4	8/30/00	ND	ND	ND	ND	ND	ND	ND	ND
RW-SED-28	0-2	8/30/00								***
RW-SED-28	2-4	8/30/00								
RW-SED-28	4-6	8/30/00				-				
RW-SED-29	0-2	8/30/00	ND	ND	ND	ND	ND	ND	ND	ND
RW-SED-29	2-4	8/30/00	ND	ND	ND	ND	ND	ND	ND	ND
RW-SED-30	0-2	8/30/00								***
RW-SED-30	2-4	8/30/00								
RW-SED-30	6-8	8/30/00								***
RW-SED-31	0-2	8/30/00	ND	ND	ND	ND	ND	ND	ND	ND
RW-SED-31	2-4	8/30/00	ND	ND	ND	ND	ND	ND	ND	ND
RW-SED-31	4-6	8/30/00	ND	ND	ND	ND	ND	ND	ND	ND
RW-SED-32	0-2	8/30/00		***	***		The state of the s			****
RW-SED-32	2-4	8/30/00					***	***		ar each
RW-SED-33	0-2	8/30/00	ND	ND	ND	ND	ND	ND	ND	ND
RW-SED-33	2-4	8/30/00	ND	ND	ND	ND	ND	ND	ND	ND

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MUDDY RIVER RESTORATION PROJECT RIVERWAY PESTICIDE SEDIMENT SAMPLE ANALYSIS RESULTS (mg/kg)

Sample ID	Sample Depth (ft BGS)	Sample Date	Endrin aldehyde	Endrin ketone	gamma- BHC	Hepta-chlor	Heptachlor epoxide	Methoxy-	Toxaphene	Chlordane
RW-SED-34	0-2	8/28/00								
RW-SED-34	2-4	8/28/00	202							
RW-SED-35	0-2	8/28/00	ND	ND	ND	ND	ND	ND	ND	ND
RW-SED-35	4-6	8/28/00	ND	ND	ND	ND	ND	ND	ND	ND
RW-SED-36	0-2	8/28/00		***	***					
RW-SED-36	2-4	8/28/00						-		
RW-SED-37	0-2	8/28/00	ND	ND	ND	ND	ND	ND	ND	ND
RW-SED-37	2-4	8/28/00	ND	ND	ND	ND	ND	ND	ND	ND
RW-SED-38	0-2	8/28/00						man,		***
RW-SED-38	2-4	8/28/00	-							
RW-SED-38	4-6	8/28/00	***							
RW-SED-39	0-2	8/25/00	ND	ND	ND	ND	ND	ND	ND	ND
RW-SED-39	4-6	8/25/00	ND	ND	ND	ND	ND	ND	ND	ND

Notes:

- = Not Analyzed ND = Not Detected

MUDDY RIVER RESTORATION PROJECT RIVERWAY INORGANIC SEDIMENT SAMPLE ANALYSIS RESULTS (mg/kg)

	Sample Depth	Sample				TCLP Chromium		TCLP Lead				
Sample ID	(ft BGS)	Date	Arsenic	Barium	Cadmium	(mg/L)	Chromium	(mg/L)	Lead	Mercury	Selenium	Silver
RW-SED-01	0-2	8/11/00	ND	18.9	126							
RW-SED-01	4-6	8/11/00	8.9	46	1.36		25.4	1.46	237	0.95	ND '	1.43
RW-SED-01	6-8	8/11/00	44.8	16.1	0.77		14	1.1	110	ND	ND	ND
RW-SED-02	2-4	8/11/00	44.8 ND	ND	ND		6.29		9.94	ND	ND	ND
RW-SED-02	4-6	8/11/00	ND ND	28.4	ND		11.3	0.71	121	0.093	ND	ND
RW-SED-02	8-10	8/11/00	ND		ND		8.8		46.5	ND	ND	ND
RW-SED-02	0-2	8/16/00	89.2	780	ND	-	10.8	ND	283	ND	ND	ND
RW-SED-03	6-8	8/16/00		39.3	16.8		ND	ND	143	ND	ND	ND
RW-SED-03	10-12	8/16/00	25.8	31	ND		8.14		31.7	ND	ND	ND
RW-SED-03	0-12	8/10/00	7.96	14.8	ND		11	-	10.7	ND	ND	ND
RW-SED-04	4-6	8/10/00	ND	79.9	2.28		46.2	0.546	384	0.44	ND	1.45
RW-SED-04	12-14		16	106	2.43		26	1.29	440	0.86	ND	0,773
RW-SED-04	0-2	8/10/00	ND	ND	ND		8.4		3.66	ND	ND	ND
RW-SED-05	4-6	8/14/00	33.9	141	3.36		31.3	0.71	534	0.59	ND	ND
RW-SED-05		8/14/00	ND	ND	ND		12.2		8.08	ND	ND	ND
RW-SED-05	6-8	8/14/00	ND	ND	ND		8.67		10.7	ND	ND	ND
	0-2	8/14/00	ND	98.5	3.53		61.1	0.741	795	0.88	ND	1.81
RW-SED-06	4-6	8/14/00	18.9	86	2.53		30.9	0.624	381	0.63	ND	ND
RW-SED-06	8-10	8/14/00	ND	ND	ND		7.75		5.77	ND	ND	ND
RW-SED-07	0-2	8/17/00	22.2	72	2.99		29.8	1.09	582	0.99	ND	ND
RW-SED-07	4-6	8/17/00	ND	15.8	ND		14.9		24.6	ND	ND	ND
RW-SED-07	6-8	8/17/00	ND	10.4	ND		12.3		ND	ND	ND	ND
RW-SED-08	0-2	8/18/00	ND	16.4	0.623		11.3		32.5	ND	ND	ND
RW-SED-08	2-4	8/18/00	ND	24.4	0.876		15.7		87.6	0.11	ND	ND
RW-SED-08	4-6	8/18/00	ND	ND	ND		11.4		6.96	ND	ND	ND
RW-SED-09	2-4	8/17/00	ND	190	6.6		162	1.85	1320	1.1	ND	2.8
RW-SED-09	6-8	8/17/00	30.2	115	2.32		23.5	0.669	377	0.89	ND	ND
RW-SED-09	10-12	8/17/00	ND	74	1.27		16.3	0.634	208	0.85	ND	ND
RW-SED-11	0-2	10/19/00	ND	53	1.9		28	2.0	330	0.50	ND	ND
RW-SED-12	0-2	10/19/00	ND	39	1.9		34	1.1	370	0.34	ND	ND
RW-SED-13	0-2	10/19/00	15	82	3.1	trees	56	2.2	540	0.77	ND	1.0
RW-SED-16	0-2	10/19/00	19	140	5.5	ND	110	0.55	980	0.53	ND	2.0
RW-SED-17	0-2	10/19/00	14	51	2.2		45		83	ND	ND	ND
RW-SED-18	0-2	10/19/00	26	90	2.8		34	2.8	580	3.3	ND	1.8

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MUDDY RIVER RESTORATION PROJECT RIVERWAY INORGANIC SEDIMENT SAMPLE ANALYSIS RESULTS (mg/kg) $\,$

	Sample					TCLP						
	Depth	Sample				Chromium		TCLP Lead				
Sample ID	(ft BGS)	Date	Arsenic	Barium	Cadmium	(mg/L)	Chromium	(mg/L)	Lead	Mercury	Selenium	Silve
RW-SED-19	0-2	8/31/00	ND	71	1.8		31	1.5	420	0.55	ND	ND
RW-SED-19	2-4	8/31/00	12	110	3.0		59	0.82	840	1.2	ND ND	1.5
RW-SED-19	4-6	8/31/00	ND	43	ND	***	42	0.02	15	0.37	ND ND	ND ND
RW-SED-20	0-2	8/31/00	ND	83	2.7		44	1.7	650	0.37	ND ND	NE
RW-SED-20	2-4	8/31/00	ND	87	1.3		31	ND ND	110	1.1	ND	NI
RW-SED-21	0-2	8/31/00	30	160	4.1		43	1.4	780	1.6	ND	1.3
RW-SED-21	2-4	8/31/00	18	82	2.1		45	ND ND	260	0.24	ND	NI.
RW-SED-22	0-2	8/30/00	23.2	158	2.29		38.6	ND	358	3.3	ND ND	NI
RW-SED-22	2-4	8/30/00	25,4	41.1	1.57		42.7		37.7	ND ND	ND ND	NI
RW-SED-23	0-2	8/30/00	ND	ND	ND		8.61		35.3	ND	ND	NI
RW-SED-23	2-4	8/30/00	ND	22.3	ND	****	19		27.4	ND	ND ND	NI
RW-SED-23	6-8	8/30/00	13.8	22.6	ND		21.1		14.3	ND	ND	NI
RW-SED-24	0-2	8/30/00	25.1	64.9	1.69		25.2	0.589	218	0.734	ND	NI
RW-SED-24	4-6*	8/30/00	13.3	ND	ND		18.4	0.507	15.4	0.1565	ND	NI
RW-SED-25	0-2	8/30/00	12.6	36.2	1.17		17.6	***	94.5	0.1303	ND	NI
RW-SED-25	2-4	8/30/00	20.6	44.1	1.69		37.7		27.1	ND	ND	NI
RW-SED-26	0-2	8/30/00	40.1	163	5.93		64.4	1.37	1030	1.98	ND	1.6
RW-SED-26	2-4	8/30/00	28.2	76.2	1.75		45.5	1,57	33.3	ND	ND	NI.
RW-SED-27	0-2	8/30/00	37.6	141	4.84		52.6	1.12	836	1.23	ND	1.4
RW-SED-27	2-4	8/30/00	38.1	132	4.95		38.8	0.771	766	1.12	ND	1.4
RW-SED-28	0-2	8/30/00	47.4	251	ND		93.3	2.35	977	1.76	ND	NE
RW-SED-28	2-4*	8/30/00	49.65	211	ND		76.25	1.6	846.5	1.675	ND	NI
RW-SED-28	4-6	8/30/00	ND	ND	ND		19	2.32	11.6	. ND	ND	NE
RW-SED-29	0-2	8/30/00	ND	ND	ND	-	31.4	2.32	40.2	ND	ND	NE
RW-SED-29	2-4	8/30/00	23.8	205	ND	ND	117	2.32	1620	1.87	ND	ND
RW-SED-30	0-2	8/30/00	ND	ND	ND	***	22.6	2.32	43.4	ND ND	ND	NE
RW-SED-30	2-4	8/30/00	ND	ND	ND		13.2		32.2	ND	ND	ND
RW-SED-30	6-8	8/30/00	ND	ND	ND	0.00	10.4		28.8	ND	ND	ND
RW-SED-31	0-2	8/30/00	ND	74	ND		38.9	ND	276	0.301	ND	
RW-SED-31	2-4	8/30/00	27.5	133	ND		64.4	1.15	844	1.53		ND
RW-SED-31	4-6	8/30/00	ND	66.2	ND		40.8	ND ND	391	0.869	ND	ND
RW-SED-32	0-2*	8/30/00	28.6	101.85	ND		43.65	ND	321.5	0.869	ND	ND
RW-SED-32	2-4	8/30/00	28.4	42.1	ND	****	37.5	ND	54.4	ND ND	ND ND	ND

MUDDY RIVER RESTORATION PROJECT RIVERWAY

INORGANIC SEDIMENT SAMPLE ANALYSIS RESULTS (mg/kg)

	Sample		ь			TCLP	T			T		
	Depth	Sample				Chromium		TCLP Lead				
Sample ID	(ft BGS)	Date	Arsenic	Barium	Cadmium	(mg/L)	Chromium	(mg/L)	Lead	Mercury	Selenium	Silver
RW-SED-33	0.0	0.400.400										
	0-2	8/30/00	ND	233	ND	ND	114	0.606	845	1.82	ND	ND
RW-SED-33	2-4	8/30/00	ND	45.6	ND		43.1		94.4	ND	ND	ND
RW-SED-34	0-2	8/28/00	65.4	245	8.04		76.8	1.8	1250	1.6	ND	2.64
RW-SED-34	2-4	8/28/00	ND	35.6	ND		31.9		45.7	ND	ND	ND
RW-SED-35	0-2	8/28/00	ND	237	11.6	ND	161	2.2	2050	1.6	ND	2.46
RW-SED-35	4-6	8/28/00	16.3	79.9	2.53		47.6	ND	228	0.22	ND	ND
RW-SED-36	0-2	8/28/00	37.9	163	5.51		44.4	1.4	817	0.69	ND	1.46
RW-SED-36	2-4	8/28/00	ND	38.7	1.39		35.8		15.6	ND	ND	ND
RW-SED-37	0-2	8/28/00	17.2	248	8.75	ND	100	ND	828	1.5	ND	5.99
RW-SED-37	2-4	8/28/00	18.6	144	5.77	ND	129	0.60	998	0.74	ND	1.37
RW-SED-38	0-2	8/28/00	28.2	184	7.78		192	0.00	1340	1.6	ND ND	1.87
RW-SED-38	2-4	8/28/00	ND	69.4	2.11		40	l i				
RW-SED-38	4-6	8/28/00	ND	46.6	ND ND				169	0.24	ND	ND
RW-SED-39	0-2	8/25/00	31.1	99.9			38.5		18	ND	ND	ND
RW-SED-39	4-6	8/25/00			3.14		70.9	0.664	411	0.9	ND	ND
ICM-OFD-39	4-0	8/23/00	12.5	26.4	1.22		26.5		12.7	ND	ND	ND

Notes:

- = Not Analyzed

ND = Not Detected

* Results in table are the average of two duplicate sample results

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MUDDY RIVER RESTORATION PROJECT LEVERETT POND AND WILLOW POND VOLATILE PETROLEUM HYDROCARBON SEDIMENT SAMPLE ANALYSIS RESULTS (mg/kg)

Sample ID	Sample Depth (ft)	Sample Date	C5-C8 Aliphatic Hydrocarbons	C9-C10 Aromatic Hydrocarbons	C9-C12 Aliphatic Hydrocarbons	Benzene	Ethylbenzene	m,p-Xylene	Methyl tert- butyl ether	Naphthalene	Toluene
LP-SED-01		0/1/6/100									
LP-SED-01	0-2 4-6	8/15/00 8/15/00	4.4	5.2	2.2	ND	ND	ND	ND	ND	ND
LP-SED-01	6-8	8/15/00	4	ND	1.8	ND	ND	ND	ND	ND	ND
LP-SED-01	0-8		4.4	ND	0.88	ND	ND	ND	ND	ND	ND
LP-SED-02	2-4	8/15/00 8/15/00	ND	ND	1.4	ND	ND	. ND	ND	ND	ND
LP-SED-03	0-2	8/13/00	ND	ND	ND	ND	ND	ND	ND	ND	ND
LP-SED-03	2-4	8/18/00	ND	ND	1.5	ND	ND	ND	ND	ND	ND
LP-SED-04	0-2	8/15/00	ND	ND	ND	ND	ND	ND	ND	ND	ND
LP-SED-04	2-4	8/15/00	ND ND	ND	5.2	ND	ND	ND	ND	ND	ND
LP-SED-05	0-2	8/13/00		ND	ND	ND	ND	ND	ND	ND	ND
LP-SED-05	2-4	8/18/00	ND ND	ND	4.4	ND	ND	ND	ND	ND	ND
LP-SED-06	0-2	8/15/00	ND ND	ND	ND	ND	ND	ND	ND	ND	ND
LP-SED-06	2-4	8/15/00	ND	1.6	4.4	ND	ND	ND	ND	ND	ND
LP-SED-07	0-2	8/18/00	ND	ND	ND	ND	ND	ND	ND	ND	ND
LP-SED-07	4-6	8/18/00	ND	ND ND	4.2	ND	ND	ND	ND	ND	ND
LP-SED-08	0-2*	8/15/00	ND ND		ND	ND	ND	ND	ND	ND	ND
LP-SED-08	2-4	8/15/00	ND	2.25 ND	5.45	ND	ND	ND	ND	ND	ND
LP-SED-09	0-2	8/18/00			0.64	ND	ND	ND	ND	ND	ND
LP-SED-09	2-4	8/18/00	ND	ND	5.1	ND	ND	ND	ND	ND	ND
LP-SED-10	0-2	8/7/00	ND	ND	0.75	ND	ND	ND	ND	ND	ND
LP-SED-10	6-8	8/7/00	ND ND	2.7	2.4	ND	ND	ND	ND	ND	ND
LP-SED-10	8-10	8/7/00	ND ND	ND	1.7	ND	ND	ND	ND	ND	ND
LP-SED-11	0-2	8/22/00	ND ND	ND	ND	ND	ND	ND	ND	ND	ND
LP-SED-11	2-4	8/22/00		6.7	14	ND	ND	ND	ND	ND	ND
LP-SED-11	4-6	8/22/00	ND ND	3.3	9	ND	ND	ND	ND	ND	ND
LP-SED-11	0-2	8/18/00		ND	0.7	ND	ND	ND	ND	ND	ND
LP-SED-12	2-4	8/18/00	ND	ND	3.1	ND	ND	ND	ND	ND	ND
LP-SED-12	6-8	8/18/00	ND ND	ND	1.9	ND	ND	ND	ND	ND	ND
LP-SED-12	0-8	8/23/00	ND ND	ND	1.5	ND	ND	ND	ND	ND	ND
LP-SED-13	2-4	8/23/00	ND ND	ND	5.1	ND	ND	ND	ND	ND	ND
LP-SED-13	6-8	8/23/00	ND ND	ND	1.4	ND	ND	ND	ND	ND	ND
DI -0ED-13	0-0	6/23/00	[עא	ND	ND	ND	ND	ND	ND	ND	ND

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MUDDY RIVER RESTORATION PROJECT LEVERETT POND AND WILLOW POND VOLATILE PETROLEUM HYDROCARBON SEDIMENT SAMPLE ANALYSIS RESULTS (mg/kg)

Sample ID	Sample Depth (ft)	Sample Date	C5-C8 Aliphatic Hydrocarbons	C9-C10 Aromatic Hydrocarbons	C9-C12 Aliphatic Hydrocarbons	Benzene	Ethylbenzene	m,p-Xylene	Methyl tert- butyl ether	Naphthalene	Toluene
LP-SED-14	0-2	8/18/00	ND								
LP-SED-14	4-6	8/18/00	ND ND	ND ND	3.7	ND	ND	ND	ND	ND	ND
LP-SED-15	0-2	8/22/00	ND ND	ND	4.2	ND	ND	ND	ND	ND	ND
LP-SED-15	2-4	8/22/00	ND		ND	ND	ND	ND	ND	ND	ND
LP-SED-16	0-2	8/23/00	ND	ND 9.4	ND 14	ND	ND	ND	ND	ND	ND
LP-SED-16	4-6	8/23/00	ND	9.4 4.1		ND	ND	ND	ND	ND	ND
LP-SED-16	6-8	8/23/00	ND	4.1 ND	7.5	ND	ND	ND	ND	ND	ND
LP-SED-17	0-2	8/21/00	ND	4.6	0.83 13	ND	ND	ND	ND	ND	ND
LP-SED-17	2-4	8/21/00	ND	8.8	15	ND	ND	ND	ND	ND	ND
LP-SED-17	8-10	8/21/00	ND	ND	7.7	ND	ND	ND	ND	ND	ND
LP-SED-18	0-2	8/22/00	8.6	8.6		ND	ND	ND	ND	ND	ND
LP-SED-18	4-6	8/22/00	ND	ND	15	ND	ND ·	ND	ND	ND	ND
LP-SED-19	0-2	8/7/00	ND	ND ND	0.78	ND	ND	ND	ND	ND	ND
LP-SED-19	6-8	8/7/00	ND	ND ND	1.8 1.4	ND	ND	ND	ND	ND	ND
LP-SED-19	8-10	8/7/00	ND	ND	1.4	ND	ND	ND	ND	ND	ND
LP-SED-20	0-2	8/23/00	ND	3.9		ND	ND	ND	ND	ND	ND
LP-SED-20	2-4*	8/23/00	ND	3.9 7	9.6	ND	ND	ND	ND	ND	ND
LP-SED-20	4-6	8/23/00	ND	ND ND	8.5 8.7	ND ND	ND	ND	ND	ND	ND
LP-SED-21	0-2	8/21/00	ND	ND ND	3.8		ND	ND	ND	ND	ND
LP-SED-21	4-6	8/21/00	ND	2.9	5.7	ND	ND	ND	ND	ND	ND
LP-SED-21	6-8	8/21/00	ND	ND ND	1.2	ND	ND	ND	ND	ND	ND
LP-SED-22	0-2	8/22/00	ND	3.4	8.5	ND ND	ND	ND	ND	ND	ND
LP-SED-22	2-4	8/22/00	ND	2.8	7.6	ND	ND	ND	ND	0.44	ND
LP-SED-22	6-8	8/22/00	ND	ND ND	1.2	ND	ND	ND	ND	ND	ND
LP-SED-23	0-2	8/23/00	3.3	ND	1.2	ND ND	ND ND	ND	ND	ND	ND
LP-SED-23	6-8	8/23/00	ND	ND	3	ND ND	ND ND	ND ND	ND	ND	ND
LP-SED-23	12-14	8/23/00	ND	0.73	2.6	ND	ND	ND ND	ND	ND	ND
LP-SED-24	0-2*	8/21/00	ND	7	6.55	ND	ND ND	ND ND	ND	ND 0.22	ND
LP-SED-24	4-6	8/21/00	ND	0.75	2.5	ND ND	ND	ND ND	ND	0.23	0.795
LP-SED-24	6-8	8/21/00	ND	ND ND	ND ND	ND ND	ND	ND ND	ND	ND	ND
LP-SED-25	0-2	8/21/00	ND	ND ND	6.9	ND	ND	ND ND	ND ND	ND ND	ND ND

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MUDDY RIVER RESTORATION PROJECT LEVERETT POND AND WILLOW POND VOLATILE PETROLEUM HYDROCARBON SEDIMENT SAMPLE ANALYSIS RESULTS (mg/kg)

Sample ID	Sample Depth (ft)	Sample Date	C5-C8 Aliphatic Hydrocarbons	C9-C10 Aromatic Hydrocarbons	C9-C12 Aliphatic Hydrocarbons	Вепхене	Ethylbenzene	m,p-Xylene	Methyl tert- butyl ether	Naphthalene	Toluene
LP-SED-25	4-6	8/21/00	8.7	5.9	8.7	ND	ND	ND	ND	ND) III)
LP-SED-25	12-14	8/21/00	ND	2.5	4.6	ND	ND	ND	ND	ND	ND ND
LP-SED-26	0-2	8/22/00	ND	13	11	ND	ND	ND	ND	ND	ND ND
LP-SED-26	4-6	8/22/00	ND	1.8	4.3	ND	ND	ND	ND	ND	ND ND
LP-SED-26	12-14	8/22/00	ND	ND	1.1	ND	ND	ND	ND	ND	ND
WL-SED-1	0-2	8/9/00	ND	23	21	ND	ND	ND	ND	ND	ND
WL-SED-1	4-6	8/9/00	9.3	9.2	9.6	ND	ND	ND	ND	ND	ND
WL-SED-1	6-8	8/9/00	15	ND	3.9	ND	ND	ND	ND	ND	ND
WL-SED-1	10-12	8/9/00	18	ND	4.4	ND	ND	ND	ND	ND	ND
WL-SED-2	0-2	10/18/00	ND	42	76	ND	ND	ND	ND	ND	ND
WL-SED-3	0-2	10/18/00	ND	18	33	ND	ND	ND	ND	ND	ND
WL-SED-4	0-2	10/18/00	ND	18	51	ND	ND	ND	ND	ND	ND
WL-SED-5	0-2	8/9/00	4.8	ND	1.1	ND	ND	ND	ND	ND	ND
WL-SED-5	4-6	8/9/00	11	1.5	2.2	ND	ND	ND	ND	ND	ND
WL-SED-5	6-8	8/9/00	7.4	ND	1.5	ND	ND	ND	ND	ND	ND

Notes:

-- = Not Analyzed
ND = Not Detected

* Results in table are the average of two duplicate sample results LP in sample ID indicates Leverett Pond WP in sample ID indicates Willow Pond

MUDDY RIVER RESTORATION PROJECT LEVERETT POND AND WILLOW POND EXTRACTABLE PETROLEUM HYDROCARBON SEDIMENT SAMPLE ANALYSIS RESULTS (mg/kg)

Sample ID	Sample Depth (ft)	Sample Date	C11-C22 Aromatic Hydrocarbons	C19-C36 Aliphatic Hydrocarbons	C9-C18 Aliphatic Hydrocarbons	2-Methyl- naphthalene	Acenaphthene	Acenaphthylene	Anthracene	Benzo(a) anthracene	Benzo(a)pyrene	Benzo(b) fluoranthene	Benzo(g,h,i) perylene	Benzo(k) fluoranthene	Chrysene	Dibenz(a,h) anthracene	Fluoranthene	Fluorene	Indeno(1,2,3- cd)pyrene	Naphthalene	Phenanthrene	Pyrene
LP-SED-01	0-2	8/15/00	ND	89	ND	ND	ND	ND	ND	0.63	0.59	0.9	0.4	ND	0.52	ND) ID	0.20			
LP-SED-01	4-6	8/15/00	ND	120	ND	ND	ND	ND	0.54	1.4	1.6	2.1	1.1	0.81	1.5	ND	1.7	ND	0.38	ND	1.2	1.4
LP-SED-01	6-8	8/15/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND ND	ND	4.6	ND	0.98	ND	3.5	3.8
LP-SED-02	0-2	8/15/00	180	590	ND	ND	0.69	1.0	3.3	11	7.4	15	1.6	3.9	14	0.5	ND 29	ND	ND	ND	ND	ND
LP-SED-02	2-4	8/15/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND		1.5 ND	2.1	ND	14	26
LP-SED-03	0-2	8/18/00	ND	210	ND	ND	ND	ND	0.46	0.89	1.1	1.7	0.72	0.61	1.0	ND	ND	ND ND	ND	ND	ND	ND
LP-SED-03	2-4	8/18/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	2.7 ND		0.79	ND	1.3	2.3
LP-SED-04	0-2	8/15/00	ND	220	ND	ND	ND	ND	ND	ND	ND	0.75	ND	ND	ND	ND	1	ND ND	ND	ND	ND	ND
LP-SED-04	2-4	8/15/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	1.2		ND	ND	ND	1.1
LP-SED-05	0-2	8/18/00	120	1300	150	ND	0.49	0.65	1.4	5.8	6.0	12	2.1	2.7	6.3	0.63	ND	ND 0.75	ND	ND	ND	ND
LP-SED-05	2-4	8/18/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND ND	ND	ND ND	ND	ND	ND	ND	2.4 ND	ND	5.8	13
LP-SED-06	0-2	8/15/00	ND	100	ND	ND	ND	ND	ND	0.58	0.58	1.0	0.42	ND	0.68	ND		ND .		ND	ND	ND
LP-SED-06	2-4	8/15/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	1.7 ND	ND ND	0.47 ND	ND	0.78	1.4
LP-SED-07	0-2	8/18/00	140	1500	170	ND	ND	0.57	1.4	5.7	5.9	12	2.0	2.7	7.4	0.57	14	0.74		ND	ND	ND
LP-SED-07	4-6	8/18/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.74 ND	2.3 ND	ND ND	5.7 ND	ND
LP-SED-08	0-2*	8/15/00	ND	220	ND	ND	ND	ND	0.55	1.55	2.02	3.35	1.25	0.7	2.03	0.33	4.95	ND	1.25	ND	2.46	
LP-SED-08	2-4	8/15/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	4.35 ND
LP-SED-09	0-2	8/18/00	160	2000	240	ND	0.88	0.64	1.9	9.3	8.2	19	2.2	1.8	9.6	0.66	22	0.71	2.5	ND	8.3	19
LP-SED-09	2-4	8/18/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
LP-SED-10	0-2	8/7/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
LP-SED-10	6-8	8/7/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
LP-SED-10	8-10	8/7/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
LP-SED-11	0-2	8/22/00	ND	560	ND	ND	ND	ND	0.94	2.9	2.9	3.9	2.2	1.6	2.9	0.63	7	ND	2.0	ND	3.2	6.5
LP-SED-11	2-4	8/22/00	ND	440	ND	ND	ND	ND	0.68	2.2	2.3	3.0	1.6	1.1	2.0	ND	5.4	ND	1.5	ND	2.7	4.9
LP-SED-11	4-6	8/22/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
LP-SED-12	0-2	8/18/00	240	1100	ND	ND	0.72	0.57	2.0	8.2	9.3	17	3.6	3.4	9.0	1.3	23	1.2	4.0	0.4	8.5	20
LP-SED-12	2-4	8/18/00	ND	490	ND	ND	ND	ND	0.83	3.1	3.8	5.7	1.6	1.9	4.0	0.5	9.6	0.54	1.8	ND	4	8.1
LP-SED-12	6-8	8/18/00	91	800	88	ND	ND	ND	0.91	4.1	4.5	7.6	1.7	2.2	4.7	0.66	12	0.61	2.0	ND	2.5	10
LP-SED-13	0-2	8/23/00	ND	260	ND	ND	ND	ND	ND	1.6	1.7	2.1	0.99	0.88	1.5	ND	3.8	ND	1.0	ND	1.7	3.7
LP-SED-13	2-4	8/23/00	ND	140	ND	ND	ND	ND	ND	1.5	1.4	1.8	0.98	0.69	1.2	ND	3.3	ND	0.85	ND	1.7	3.1
LP-SED-13	6-8	8/23/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
LP-SED-14	0-2	8/18/00	ND	1000	150	ND	ND	ND	1.3	5.1	5.5	8.9	2.1	2.5	5.1	ND	13	0.84	2.4	ND	6.3	12
LP-SED-14	4-6	8/18/00	ND	610	ND	ND	ND	ND	1.4	4.9	5.2	8.3	2.0	2.6	5.1	ND	14	1.0	2.4	ND	6.6	12
LP-SED-15	0-2	8/22/00	210	410	ND	ND	0.52	0.5	1.2	8.1	8.2	12	5.2	3.0	7.7	1.1	21	1.0	5.2	ND	2.2	19

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MUDDY RIVER RESTORATION PROJECT LEVERETT POND AND WILLOW POND EXTRACTABLE PETROLEUM HYDROCARBON SEDIMENT SAMPLE ANALYSIS RESULTS (mg/kg)

Sample ID	Sample Depth (ft)	Sample Date	C11-C22 Aromatic Hydrocarbons	C19-C36 Aliphatic Hydrocarbons	C9-C18 Aliphatic Hydrocarbons	2-Methyl- naphthalene	Acenaphthene	Acenaphthylene	Anthracene	Benzo(a) anthracene	Benzo(a)pyrene	Benzo(b) fluoranthene	Benzo(g,h,i) perylene	Benzo(k) fluoranthene	Chrysene	Dibenz(a,h) anthracene	Fluoranthene	Fluorene	Indeno(1,2,3- cd)pyrene	Naphthalene	Phenanthrene	Pyrene
LP-SED-15	2-4	8/22/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND:	ND	ND	ND	ND	ND
LP-SED-16	0-2	8/23/00	ND	400	ND	ND	ND	ND	1.2	2.9	2.8	4.2	1.2	1.6	3.3	ND	6.9	ND	1.3		1	
LP-SED-16	4-6	8/23/00	200	980	160	ND	0.88	ND	2.0	5.8	5.2	7.1	1.9	2.8	5.3	0.62	12	0.91		ND	5.1	6
LP-SED-16	6-8	8/23/00	ND	ND	ND	ND	ND	ND	ND	1.3	1.1	1.5	0.46	0.6	1.1	ND	2.7	ND	2.1 0.5	ND	7.3	12
LP-SED-17	0-2	8/21/00	220	1900	380	ND	0.72	ND	1.0	4.3	4.8	8.2	2.3	2.4	4.5	0.97	9.7	0.74	2.2	ND	4.5	8.9
LP-SED-17	2-4	8/21/00	ND	550	ND	ND	ND	ND	ND	1.1	1.2	1.8	ND	ND	0.98	ND	2.4	ND	ND	ND	1.1	
LP-SED-17	8-10	8/21/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	1.3	ND	ND	ND	ND	2.0	ND	ND	ND	1.1	2.3
LP-SED-18	0-2	8/22/00	ND	660	160	ND	ND	ND	0.72	2.2	1.8	2.5	1.3	0.94	1.9	ND	4.6	ND	1.2	ND	2.8	4.3
LP-SED-18	4-6	8/22/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
LP-SED-19	0-2	8/7/00	ND	73	ND	ND	ND	ND	0.42	0.7	0.66	0.77	0.45	0.43	0.78	ND	1.8	ND	0.45	ND	1.0	1.5
LP-SED-19	6-8	8/7/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
LP-SED-19	8-10	8/7/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
LP-SED-20	0-2	8/23/00	320	420	ND	1.1	3.4	ND	5.0	8.4	6.9	9.0	2.1	3.4	7.2	0.62	20	3.6	2.4	1.7	22	17
LP-SED-20	2-4*	8/23/00	340	780	135	ND	1.2	0.38	2.9	8.6	7.2	10.2	2.3	3.0	8.1	0.435	18	1.5	2.4	0.63	12.2	16.4
LP-SED-20	4-6	8/23/00	ND	500	ND	ND	ND	ND	2.6	7.4	6.3	9.2	1.9	2.7	6.6	ND	16	1.1	2.1	ND	11	14
LP-SED-21	0-2	8/21/00	ND	150	ND	ND	ND	ND	1.1	2.2	2.3	3.6	0.97	1.0	2.1	ND	6	0.41	1.0	ND	5.1	4.6
LP-SED-21	4-6	8/21/00	130	440	ND	ND	1.0	0.58	3.0	8.8	10	15	3.8	4.0	9.2	1.1	24	1.3	4.3	ND	13	21
LP-SED-21	6-8	8/21/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.48	ND	ND	0.38	ND	0.83	ND	ND	ND	0.43	0.74
LP-SED-22	0-2	8/22/00	ND	300	ND	ND	ND	ND	0.91	2.7	2.7	3.4	1.9	1.2	2.6	ND	6.9	ND	1.6	ND	4.7	6.0
LP-SED-22	2-4	8/22/00	ND	250	ND	ND	0.6	ND	1.6	5.2	5.5	6.6	3.2	2.1	5.2	0.87	14	0.64	3.1	ND	8.1	12
LP-SED-22	6-8	8/22/00	ND	130	ND	ND	ND	ND	0.76	2.2	2.1	2.5	1.3	0.82	1.9	ND	5.1	ND	1.2	ND	2.4	4.6
LP-SED-23	0-2	8/23/00	ND	ND	ND	ND	ND	ND	ND	0.46	0.48	0.61	ND	ND	0.6	ND	1.3	ND	ND	ND	0.76	1.1
LP-SED-23	6-8	8/23/00	90	170	ND	ND	0.81	0.45	2.2	5.0	5.0	6.2	2.0	1.7	4.6	0.64	12	1.2	2.2	ND	9.5	10
LP-SED-23	12-14	8/23/00	63	100	ND	ND	0.71	ND	1.6	3.8	3.7	4.5	1.3	1.7	3.4	0.47	9.3	0.73	1.4	ND	9.2	8.2
LP-SED-24	0-2*	8/21/00	300	570	39.5	0.19	2	0.65	5.55	12	12.5	18.5	6.45	4.8	11.5	2.1	33.5	3.35	6.6	0.44	22	29
LP-SED-24	4-6	8/21/00	230	160	ND	0 75	2.1	0.48	5.9	8.4	8.8	12	3.7	2.9	8.1	1.0	24	3.7	4.4	0.68	26	20
LP-SED-24	6-8	8/21/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.6	ND	ND	ND	ND	0.53
LP-SED-25	0-2	8/21/00	ND	630	ND	ND	ND	ND	1.2	3.3	3.2	5.5	1.3	1.5	3.4	ND	9.5	ND	1.3	ND	6.9	7.0
LP-SED-25	4-6	8/21/00	ND	310	ND	ND	ND	ND	0.66	1.4	1.4	2.2	0.67	0.71	1.4	ND	3.6	ND	0.64	ND	2.6	2.9
LP-SED-25	12-14	8/21/00	ND	260	ND	ND	ND		0.97	2.8	3.2	4.8	1.3	1.3	2.8	ND	7.4	0.76	1.3	ND	4.6	6.4
LP-SED-26	0-2	8/22/00	210	1200	170	ND	ND	ND	0.68	2.3	2.4	3.1	1.8	1.1	2.2	0.61	5.2	ND	1.6	ND	3.4	5.0
LP-SED-26	4-6	8/22/00	ND	210	ND	ND	ND	ND	0.5	1.3	1.0	1.3	0.69	0.48	1.0	ND	2.7	ND	0.65	ND	1.5	2.5
LP-SED-26	12-14	8/22/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
WL-SED-1	0-2	8/9/00	260	180	510	ND	0.5	ND	0.56	0 66	0.6	1.7	0.37	0.59	0 88	ND	2.5	0.46	0.53	ND	1.9	1.9

MUDDY RIVER RESTORATION PROJECT LEVERETT POND AND WILLOW POND EXTRACTABLE PETROLEUM HYDROCARBON SEDIMENT SAMPLE ANALYSIS RESULTS (mg/kg)

Sample ID	Sample Depth (ft)	Sample Date	C11-C22 Aromatic Hydrocarbons	C19-C36 Aliphatic Hydrocarbons	C9-C18 Aliphatic Hydrocarbons	2-Methyl- naphthalene	Acenaphthene	Acenaphthylene	Anthracene	Benzo(a) anthracene	Benzo(a)pyrene	Benzo(b) fluoranthene	Benzo(g,h,i) perylene	Benzo(k) fluoranthene	Chrysene	Dibenz(a,h) anthracene	Fluoranthene	Fluorene	Indeno(1,2,3- cd)pyrene	Naphthalene	Phenanthrene	Pyrene
WL-SED-1	4-6	8/9/00	100	100	67	ND	ND	ND	0.33	0.4	ND	0.35	ND	ND	ND	ND	1.6	ND	ND	ND	1.6	1
WL-SED-1	6-8	8/9/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND		0.55	ND	ND	ND	1.5	0.44
WL-SED-1	10-12	8/9/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
WL-SED-2	0-2	#######	330	630	170	ND	1.1	0.74	3.6	7.3	6.8	8.6	3.6	2.7	7.5	0.96	19	2.0	4.2	0.53	15	17
WL-SED-3	0-2	######	580	580	250	0.79	2.6	1.0	7.5	16	15	19	5.7	6.5	18	1.6	40	3.8	6.8	0.87	30	38
WL-SED-4	0-2	#######	ND	620	ND	ND	ND	ND	ND	1.8	2.0	2.9	1.2	0.89	2.4	ND	4.5	ND	1.3	ND	1.9	4.4
WL-SED-5	0-2	8/9/00	ND	ND	ND	ND	ND	0.34	0.4	0.48	ND	0.47	ND	ND	0.53	ND	1.9	ND	ND	ND	1.8	1.5
WL-SED-5	4-6	8/9/00	ND	ND	ND	ND	ND	ND	ND	0.31	ND	0.44	ND	ND	0.33	ND	1.3	ND	ND		0.79	1.1
WL-SED-5	6-8	8/9/00	ND	ND	ND	ND	ND	ND	ND	0.43	ND	0.35	ND	ND	0.36	ND	1.4	ND	ND		0.89	

Notes:

- = Not Analyzed
ND = Not Detected

* Results in table are the average of two duplicate sample results LP in sample ID indicates Leverett Pond WP in sample ID indicates Willow Pond

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MUDDY RIVER RESTORATION PROJECT LEVERETT POND AND WILLOW POND PCB & PESTICIDE SEDIMENT SAMPLE ANALYSIS RESULTS (ug/kg)

	Sample																
	Depth	Sample						Aroclor	beta-	delta-							
Sample ID	(ft)	Date	4,4'-DDD	4,4'-DDE	4,4'-DDT	Aldrin	alpha-BHC	1016	1221	1232	1242	1248	1254	1260	BHC	BHC	Dieldri
								1010	*===	1232	1272	1240	1234	1200	DIIC	BIIC	Dicidili
LP-SED-01	0-2	8/15/00	140	61	74	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
LP-SED-01	4-6	8/15/00	1100	160	75	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
LP-SED-01	6-8	8/15/00	24	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
LP-SED-02	0-2	8/15/00					***		***								
LP-SED-02	2-4	8/15/00														_	_
LP-SED-03	0-2	8/18/00															
LP-SED-03	2-4	8/18/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
LP-SED-04	0-2	8/15/00		****												140	IND
LP-SED-04	2-4	8/15/00								Driven.							
LP-SED-05	0-2	8/18/00	860	280	43	ND	ND	ND	ND	ND	ND	ND	330	230	ND	ND	ND
LP-SED-05	2-4	8/18/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
LP-SED-06	0-2	8/15/00	***													140	140
LP-SED-06	2-4	8/15/00													***		
LP-SED-07	0-2	8/18/00	5400	830	140	ND	ND	ND	ND	ND	ND	ND	260	160	ND	ND	ND
LP-SED-07	4-6	8/18/00	150	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
LP-SED-08	0-2	8/15/00														140	
LP-SED-08	2-4	8/15/00			***												
LP-SED-09	0-2	8/18/00	1300	360	76	ND	ND	ND	ND	ND	ND	ND	330	260	ND	ND	ND
LP-SED-09	2-4	8/18/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
LP-SED-10	0-2	8/7/00						***									
LP-SED-10	6-8	8/7/00															
LP-SED-10	8-10	8/7/00						***						***	despris		
LP-SED-11	0-2	8/22/00	1900	250	190	ND	ND	ND	ND	ND	ND	ND	ND	140	ND	ND	ND
LP-SED-11	2-4	8/22/00	2800	350	210	ND	ND	ND	ND	ND	ND	ND	ND	210	ND	ND	ND
LP-SED-11	4-6	8/22/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
LP-SED-12	0-2	8/18/00								_					210		
LP-SED-12	2-4	8/18/00												0.000			
LP-SED-12	6-8	8/18/00					***								_		
LP-SED-13	0-2	8/23/00	1200	310	170	ND	ND	ND	ND	ND	ND	ND	ND	350	ND	ND	53
LP-SED-13	2-4	8/23/00	1900	240	68	ND	ND	ND	ND	ND	ND	ND	ND	190	ND	ND	ND
LP-SED-13	6-8	8/23/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
LP-SED-14	0-2	8/18/00	0-100														1415
LP-SED-14	4-6	8/18/00			***												
LP-SED-15	0-2	8/22/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

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MUDDY RIVER RESTORATION PROJECT LEVERETT POND AND WILLOW POND PCB & PESTICIDE SEDIMENT SAMPLE ANALYSIS RESULTS (ug/kg)

	Sample																
	Depth	Sample						Aroclor	Aroclor	Aroclor	Aroclor	Aroclor	A I				
Sample ID	(ft)	Date	4,4'-DDD	4,4'-DDE	4,4'-DDT	Aldrin	alpha-BHC	1016	1221	1232	1242	1248	Aroclor 1254	Aroclor	beta-	delta-	
								1010	1221	1232	1242	1240	1234	1260	BHC	BHC	Dieldri
LP-SED-15	2-4	8/22/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	200	370		
LP-SED-16	0-2	8/23/00	***		-						740			ND	ND	ND	ND
LP-SED-16	4-6	8/23/00		-											th-lane	-	
LP-SED-16	6-8	8/23/00															
LP-SED-17	0-2	8/21/00	650	270	62	ND	ND	ND	ND	ND	ND	ND	340	0.40) FF0		
LP-SED-17	2-4	8/21/00	3100	770	88	ND	ND	ND	ND	ND	ND	ND	620	240	ND	ND	ND
LP-SED-17	8-10	8/21/00	330	38	ND	ND	ND	ND	ND	ND	ND	ND	ND ND	450	ND	ND	ND
LP-SED-18	0-2	8/22/00	_						_					ND	ND	ND	ND
LP-SED-18	4-6	8/22/00	_						_			-					
LP-SED-19	0-2	8/7/00	150	40	18	ND	ND	ND	ND	ND	ND	ND	700		2 100		
LP-SED-19	6-8	8/7/00	9.5	4.2	12	ND	ND	ND	ND	ND	ND ND	ND D	120	59	ND	ND	ND
LP-SED-19	8-10	8/7/00	ND	ND	ND	ND	ND	ND	ND	ND	ND ND		ND	ND	ND	ND	ND
LP-SED-20	0-2	8/23/00				_			ND			ND	ND	ND	ND	ND	ND
LP-SED-20	2-4	8/23/00	_											-			
LP-SED-20	4-6	8/23/00	***												_		
LP-SED-21	0-2	8/21/00	65	ND	77	ND	ND	ND	ND	ND							
LP-SED-21	4-6	8/21/00	480	66	ND	ND	ND	ND	ND	ND ND	ND ND	ND	380	140	ND	ND	ND
LP-SED-21	6-8	8/21/00	ND	ND	ND	ND	ND	ND	ND ND	ND	ND ND	ND	110	ND	ND	ND	ND
LP-SED-22	0-2	8/22/00		***		_	***			ND		ND	ND	ND	ND	ND	ND
LP-SED-22	2-4	8/22/00				_		_		-					-		
LP-SED-22	6-8	8/22/00				_									-	-	
LP-SED-23	0-2	8/23/00	ND	ND	ND	ND	ND	ND	ND ND	ND							_
LP-SED-23	6-8	8/23/00	280	94	34	16	ND	ND	ND ND	ND	ND ND	ND	ND	ND	ND	ND	ND
LP-SED-23	12-14	8/23/00	33	28	67	ND	ND	ND	ND	ND		ND	ND	69	ND	ND	33
P-SED-24	0-2	8/21/00				-					ND	ND	370	120	ND	ND	32
LP-SED-24	4-6	8/21/00															
LP-SED-24	6-8	8/21/00															***
LP-SED-25	0-2	8/21/00	180	120	ND	ND	ND	ND	ND						######################################		
LP-SED-25	4-6	8/21/00	530	270	140	ND	ND			ND	ND	ND	330	150	ND	ND	ND
LP-SED-25	- 1	8/21/00	8300	630	86	28	ND	ND ND	ND	ND	ND	ND	390	260	ND	ND	ND
P-SED-26		8/22/00				20			ND	ND	ND	ND	480	330	ND	ND	670
P-SED-26		8/22/00															
P-SED-26		8/22/00							-								-
WL-SED-1	0-2	8/9/00	34	23	39	ND	NID.) TD		_]	,	
				23	37	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

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MUDDY RIVER RESTORATION PROJECT LEVERETT POND AND WILLOW POND PCB & PESTICIDE SEDIMENT SAMPLE ANALYSIS RESULTS (ug/kg)

	Sample																
Sample ID	Depth (ft)	Sample		4,4'-DDE	4,4′-DDT	Aldrin	alpha-BHC	Aroclor 1016	Atoclor 1221	Aroclor 1232	Aroclor 1242	Aroclor 1248	Aroclor 1254	Aroclor 1260	beta- BHC	delta- BHC	Dieldri
WL-SED-1	4-6	8/9/00	1100	130	440	ND	ND	ND	ND	ND	ND	ND	110	43	ND	ND	ND
WL-SED-1 WL-SED-1	6-8 10-12	8/9/00 8/9/00	25	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND ND	ND	ND	ND
WL-SED-1	0-12	10/18/00	ND 2000	ND 170	ND 88	ND	ND ND	ND ND	ND ND	ND ND	ND ND	ND	ND	ND	ND	ND	ND
WL-SED-3	0-2	10/18/00		230	150	ND	ND	ND	ND	ND	ND	ND ND	ND ND	70 98	ND ND	ND ND	ND ND
WL-SED-4 WL-SED-5	0-2	10/18/00 8/9/00	1400	160	110	ND	ND	ND	ND	ND	ND	ND	ND	90	ND	ND	ND
WL-SED-5	4-6	8/9/00	950	49	290	ND	ND	ND	ND ND	ND	ND	ND	ND	ND	ND	ND	
WL-SED-5	6-8	8/9/00	1400	71	3600	ND	ND	ND	ND	ND	ND	ND	ND	ND ND	57	ND	ND ND

Notes:

-- = Not Analyzed

ND = Not Detected

LP in sample ID indicates Leverett Pond WP in sample ID indicates Willow Pond

MUDDY RIVER RESTORATION PROJECT LEVERETT POND AND WILLOW POND PCB & PESTICIDE SEDIMENT SAMPLE ANALYSIS RESULTS (ug/kg)

	Sample				Endo-									
	Depth	Sample	Endo-	Endo-	sulfan		Endrin	Endrin	gamma-	gamma-	Hepta-	Heptachlor	Methoxy-	
Sample ID	(ft)	Date	sulfan I	sulfan II	sulfate	Endrin		ketone	BHC	Chlordane	chlor	epoxide	chlor	Toxaphene
									DIIC	CHUICEIIC	CILIOI	Сромис	CHIOI	Toxaphene
LP-SED-15	2-4	8/22/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
LP-SED-16	0-2	8/23/00						_	_		-	-		ND
LP-SED-16	4-6	8/23/00									_			
LP-SED-16	6-8	8/23/00		***	_				_	***			000	***
LP-SED-17	0-2	8/21/00	ND	ND	ND	ND	ND	ND	ND	160	ND	ND	ND	ND
LP-SED-17	2-4	8/21/00	ND	ND	ND	ND	ND	ND	ND	150	ND	ND	ND	ND
LP-SED-17	8-10	8/21/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
LP-SED-18	0-2	8/22/00			_								1415	ND
LP-SED-18	4-6	8/22/00										_		
LP-SED-19	0-2	8/7/00	ND	ND	ND	ND	ND	ND	ND	33	ND	ND	ND	ND
LP-SED-19	6-8	8/7/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
LP-SED-19	8-10	8/7/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
LP-SED-20	0-2	8/23/00							_	****		200	_	
LP-SED-20	2-4	8/23/00									_			
LP-SED-20	4-6	8/23/00												
LP-SED-21	0-2	8/21/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
LP-SED-21	4-6	8/21/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
LP-SED-21	6-8	8/21/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
LP-SED-22	0-2	8/22/00											P00	
LP-SED-22	2-4	8/22/00		-							_	_		
LP-SED-22	6-8	8/22/00								***				***
LP-SED-23	0-2	8/23/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
LP-SED-23	6-8	8/23/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
LP-SED-23	12-14	8/23/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
LP-SED-24	0-2	8/21/00								***		***		
LP-SED-24	4-6	8/21/00												
LP-SED-24	6-8	8/21/00												abbata.
LP-SED-25	0-2	8/21/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
LP-SED-25	4-6	8/21/00	ND	ND	ND	ND	ND	ND	ND	150	ND	ND	ND	ND
LP-SED-25	12-14	8/21/00	ND	ND	ND	ND	ND	ND	ND	54	ND	ND	ND	ND
LP-SED-26	0-2	8/22/00										****		
LP-SED-26	4-6	8/22/00									_			***
LP-SED-26	12-14	8/22/00											****	
WL-SED-1	0-2	8/9/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

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MUDDY RIVER RESTORATION PROJECT LEVERETT POND AND WILLOW POND PCB & PESTICIDE SEDIMENT SAMPLE ANALYSIS RESULTS (ug/kg)

	Sample				Endo-									
	Depth	Sample	Endo-	Endo-	sulfan		Endrin	Endrin	gamma-	gamma-	Hepta-	Heptachlor	Methoxy-	
Sample ID	(ft)	Date	sulfan I	sulfan II	sulfate	Endrin	aldehyde	ketone	BHC	Chlordane	chlor	epoxide	chlor	Toxaphen
LP-SED-01	0-2	8/15/00	ND	ND	200	2.77								
LP-SED-01	4-6	8/15/00	ND		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
LP-SED-01	6-8	8/15/00		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
LP-SED-02	0-8	8/15/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
LP-SED-02	2-4			-									****	
LP-SED-02 LP-SED-03	0-2	8/15/00												
LP-SED-03		8/18/00												****
	2-4	8/18/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
LP-SED-04	0~2	8/15/00								***				
LP-SED-04	2-4	8/15/00								_				
LP-SED-05	0-2	8/18/00	ND	ND	ND	ND	ND	ND .	ND	ND	ND	ND	ND	ND
LP-SED-05	2-4	8/18/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
LP-SED-06	0-2	8/15/00		***										
LP-SED-06	2-4	8/15/00		_										
LP-SED-07	0-2	8/18/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
LP-SED-07	4-6	8/18/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
LP-SED-08	0-2	8/15/00			***		***			Name of Street				000
LP-SED-08	2-4	8/15/00												000m
LP-SED-09	0-2	8/18/00	ND	ND	ND	ND	ND	ND	ND	32	ND	ND	ND	ND
LP-SED-09	2-4	8/18/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
LP-SED-10	0-2	8/7/00											***	
LP-SED-10	6-8	8/7/00		***									-	
LP-SED-10	8-10	8/7/00												
LP-SED-11	0-2	8/22/00	ND	ND	ND	ND	ND	ND	ND	33	ND	ND	ND	ND
LP-SED-11	2-4	8/22/00	ND	ND	ND	ND	· ND	ND	ND	31	ND	ND .	ND	ND
LP-SED-11	4-6	8/22/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
LP-SED-12	0-2	8/18/00												
LP-SED-12	2-4	8/18/00												
LP-SED-12	6-8	8/18/00					_]						and	***
LP-SED-13	0-2	8/23/00	ND	ND	ND	ND	ND	ND	ND	100	ND ND	AID.	\ID	
LP-SED-13	2-4	8/23/00	ND	ND	ND	ND	ND	ND	ND	20	ND	ND	ND	ND
LP-SED-13	6-8	8/23/00	ND	ND	ND	ND	ND	ND	ND	ND ND		ND	ND	ND
LP-SED-14	0-2	8/18/00					1	ND			ND	ND	ND	ND
LP-SED-14	4-6	8/18/00				***		1					***	
LP-SED-15	0-2	8/22/00	ND	ND	ND	ND	ND	ND	NID	\m				
			112	110	IND	ND	IND]	ND	ND	ND	ND	ND	ND	ND

MUDDY RIVER RESTORATION PROJECT LEVERETT POND AND WILLOW POND PCB & PESTICIDE SEDIMENT SAMPLE ANALYSIS RESULTS (ug/kg)

	Sample				Endo-									
	Depth	Sample	Endo-	Endo-	sulfan		Endrin	Endrin	gamma-	gamma-	Hepta-	Heptachlor	Methoxy-	
Sample ID	(ft)	Date	sulfan I	sulfan II	sulfate	Endrin				Chlordane	A	epoxide		Toxaphene
													Cindi	TOXADITOR
WL-SED-1	4-6	8/9/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
WL-SED-1	6-8	8/9/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND		
WL-SED-1	10-12	8/9/00	ND	ND	ND	ND	ND	ND					ND	ND
WL-SED-2	0-2	10/18/00	ND	ND					ND	ND	ND	ND	ND	ND
WL-SED-3					ND	ND	ND	ND	ND	41	ND	ND	ND	ND
	0-2	10/18/00	ND	ND	ND	ND	ND	ND	ND	49	ND	ND	ND	ND
WL-SED-4	0-2	10/18/00	ND	ND	ND	ND	ND	ND	ND	28	ND	ND	ND	
WL-SED-5	0-2	8/9/00					_						ND	ND
WL-SED-5	4-6	8/9/00	ND	ND	ND	ND	ND						-	manin .
WL-SED-5	6-8	8/9/00						ND	ND	ND	ND	ND	ND	ND
WE-DED-3	0=0	8/9/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

Notes:

Notes.

— = Not Analyzed
ND = Not Detected
LP in sample ID indicates Lever
WP in sample ID indicates Willo

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MUDDY RIVER RESTORATION PROJECT LEVERETT POND AND WILLOW POND INORGANIC SEDIMENT SAMPLE ANALYSIS RESULTS (mg/kg)

	Sample					TCLP			TCLP			
	Depth	Sample				Chromium			Lead			
Sample ID	(ft)	Date	Arsenic	Barium	Cadmium	(mg/L)	Chromium	Lead	(mg/L)	Mercury	Selenium	Silve
LP-SED-01	0-2	8/15/00	ND	ND	ND		5.0	44		0.038	ND	ND
LP-SED-01	4-6	8/15/00	ND	ND	ND		7.5	60		0.038	ND	
LP-SED-01	6-8	8/15/00	15	72	ND		36	13		ND	ND	ND
LP-SED-02	0-2	8/15/00	42	130	ND	***	28	450	ND	0.82	ND	ND ND
LP-SED-02	2-4	8/15/00	12	76	ND		41	13		ND	ND	
LP-SED-03	0-2	8/18/00	17	75	ND		35	59		0.25	ND	ND ND
LP-SED-03	2-4	8/18/00	17	95	ND	-	41	17		ND	ND	ND
LP-SED-04	0-2	8/15/00	29	150	6.3	ND	400	1700	3.9	1.3	ND	ND
LP-SED-04	2-4	8/15/00	13	91	ND		39	35	3.7	0.11	ND	ND
LP-SED-05	0-2	8/18/00	29	88	2.1		65	520	2.1	0.64	ND	ND
LP-SED-05	2-4	8/18/00	20	140	ND	****	67	33	2.1	ND	ND	ND
LP-SED-06	0-2	8/15/00	33	120	2.9	NAME OF TAXABLE PARTY.	90	790	2.9	0.80	ND :	ND
LP-SED-06	2-4	8/15/00	12	66	ND		39	34	2.7	0.046	ND	ND
LP-SED-07	0-2	8/18/00	33	110	3.0		93	740	2.3	0.68	ND	ND
LP-SED-07	4-6	8/18/00	15	80	ND	***	42	20		ND	ND	ND
LP-SED-08	0-2*	8/15/00	38	115	2.3	***	34	680	2.2	0.89	ND	ND
LP-SED-08	2-4	8/15/00	39	82	ND		43	58		0.044	ND	ND
LP-SED-09	0-2	8/18/00	22	86	2.3		71	680	2.6	0.57	ND	ND
LP-SED-09	2-4	8/18/00	23	ND	ND		14	6.8		ND	ND	ND
LP-SED-10	0-2	8/7/00	ND	ND	ND		19	32		0.043	ND	ND
LP-SED-10	6-8	8/7/00	ND	ND	ND		23	8.2		ND	ND	ND
LP-SED-10	8-10	8/7/00	21	59	ND		33	13		ND	ND	ND
LP-SED-11	0-2	8/22/00	34	150	4.2		89	1100	1.9	1.2	ND	ND
LP-SED-11	2-4	8/22/00	51	150	1.5	-	37	540	2.6	1.1	ND	ND
LP-SED-11	4-6	8/22/00	ND	ND	ND		20	13		ND	ND	ND
LP-SED-12	0-2	8/18/00	28	97	2.2	****	24	620	1.9	0.69	ND	ND
LP-SED-12	2-4	8/18/00	24	70	ND		22	270	ND	0.34	ND	ND
LP-SED-12	6-8	8/18/00	45	130	ND		35	440	1.3	0.69	ND	ND
LP-SED-13	0-2	8/23/00	49	150	4.3		43	1200	1.7	1.2	ND	ND
LP-SED-13	2-4	8/23/00	24	78	2.6		36	690	1.9	0.86	ND	ND
LP-SED-13	6-8	8/23/00	ND	ND	ND		10	7.2	1.9	ND ND	ND	ND
LP-SED-14	0-2	8/18/00	36	140	3.8		99	870	ND	0.77	ND	ND
LP-SED-14	4-6	8/18/00	34	110	1.9		33	510	ND	0.77	ND	ND

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MUDDY RIVER RESTORATION PROJECT LEVERETT POND AND WILLOW POND INORGANIC SEDIMENT SAMPLE ANALYSIS RESULTS (mg/kg)

	Sample					TCLP			TCLP			
	Depth	Sample				Chromium			Lead			
Sample ID	(ft)	Date	Arsenic	Barium	Cadmium	(mg/L)	Chromium	Lead	(mg/L)	Mercury	Selenium	Silver
LP-SED-26	4-6	8/22/00	28	130	1.9		40	510	ND	0.49	ND	ND
LP-SED-26	12-14	8/22/00	ND	ND	ND		12	9,4	-	ND	ND	ND
WL-SED-1	0-2	8/9/00	ND	ND	ND		10	89		0.038	ND	ND
WL-SED-1	4-6	8/9/00	ND	ND	ND		18	180	ND	0.098	ND	ND
WL-SED-1	6-8	8/9/00	ND	ND	ND	*****	9.7	32		ND	ND	ND
WL-SED-1	10-12	8/9/00	ND	ND	ND		10	4.0		ND	ND	ND
WL-SED-2	0-2	10/18/00	25	96	1.4		34	640	1.4	0.41	ND	ND
WL-SED-3	0-2	10/18/00	36	140	2.2	96000	34	960	2.0	0.80	ND	ND
WL-SED-4	0-2	10/18/00	23	83	2.3		57	950	1.3	0.53	ND	ND
WL-SED-5	0-2	8/9/00	ND	ND	ND		19	87		0.028	ND	ND
WL-SED-5	4-6	8/9/00	ND	ND	ND	***	9.2	44		0.078	ND	ND
WL-SED-5	6-8	8/9/00	ND	ND	ND	0.00	14	36	Station, .	ND	ND	ND

- = Not Analyzed
ND = Not Detected

** Results in table are the average of two duplicate sample results

LP in sample ID indicates Leverett Pond

WP in sample ID indicates Willow Pond

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MUDDY RIVER RESTORATION PROJECT LEVERETT POND AND WILLOW POND INORGANIC SEDIMENT SAMPLE ANALYSIS RESULTS (mg/kg)

	Sample					TCLP			TCLP			
	Depth	Sample				Chromium			Lead			
Sample ID	(ft)	Date	Arsenic	Barium	Cadmium	(mg/L)	Chromium	Lead	(mg/L)	Mercury	Selenium	Silver
LP-SED-15	0-2	8/22/00	ND	ND	ND	_	25	17	Children	0.99	ND	ND
LP-SED-15	2-4	8/22/00	ND	ND	ND		14	5.6	- Charles	ND	ND	ND
LP-SED-16	0-2	8/23/00	17	110	4.6	ND	130	1500	2.6	1.5	ND	ND
LP-SED-16	4-6	8/23/00	27	140	4.2		88	1300	2.8	1.4	ND	ND
LP-SED-16	6-8	8/23/00	ND	ND	ND		17	41	2.0	ND ND	ND	ND
LP-SED-17	0-2	8/21/00	29	150	6.6	***	150	1700		1.4	ND	ND
LP-SED-17	2-4	8/21/00	33	170	6.2	ND	190	1700	2.2	1.7	ND	ND
LP-SED-17	8-10	8/21/00	ND	ND	ND		28	120	ND	0.096	ND	ND
LP-SED-18	0-2	8/22/00	25	150	6.0	ND	120	1700	3.1	1.2	ND	ND
LP-SED-18	4-6	8/22/00	ND	ND	ND		15	10		ND	ND	ND
LP-SED-19	0-2	8/7/00	ND	ND	ND		9.9	120	ND	0.094	ND	ND
LP-SED-19	6-8	8/7/00	ND	ND	ND	***	10	8.2	080	ND	ND	ND
LP-SED-19	8-10	8/7/00	ND	34	ND	,	20	18	-	ND	ND	ND
LP-SED-20	0-2	8/23/00	ND	84	2.7		98	970	ND	0.72	ND	ND
LP-SED-20	2-4*	8/23/00	13.5	93.5	2.75		58	865	2.3	1.035	ND	ND
LP-SED-20	4-6	8/23/00	28	ND	ND	minus.	31	390	ND	0.77	ND	ND
LP-SED-21	0-2	8/21/00	ND	ND	ND	***	15	63	-	0.12	ND	ND
LP-SED-21	4-6	8/21/00		- BANKS	- Carron		****		ND	***		
LP-SED-21	4-6	8/21/00	36	110	2.1	****	29	560	***	0.74	ND	ND
LP-SED-21	6-8	8/21/00	13	ND	ND	0.00	11	23		0.039	ND	ND
LP-SED-22	0-2	8/22/00	ND	120	ND		43	300	ND	0.24	ND	ND
LP-SED-22	2-4	8/22/00	24	120	3.0		87	920	ND	0.33	ND	ND
LP-SED-22	6-8	8/22/00	12	35	ND	***	21	170	ND	0.046	ND	ND
LP-SED-23	0-2	8/23/00	ND	ND	ND		6.4	32	man	0.037	ND	ND
LP-SED-23	6-8	8/23/00	ND	ND	ND		10	150	ND	0.27	ND	ND
LP-SED-23	12-14	8/23/00	ND	ND	ND		23	89	800	0.12	ND	ND
LP-SED-24	0-2*	8/21/00	17	49,5	0.5	***	9.05	175	1.2	0.56	ND	ND
LP-SED-24	4-6	8/21/00	ND	ND	ND		13	63		0.14	ND	ND
LP-SED-24	6-8	8/21/00	ND	ND	ND		24	190	ND	0.081	ND	ND
LP-SED-25	0-2	8/21/00			derates.				ND	0.39	4110	100
LP-SED-25	4-6	8/21/00	16	98	2.6	ND	130	850	1.7	0.87	ND	ND
LP-SED-25	12-14	8/21/00			time.	***		Cortor Co	ND	0.51		000
LP-SED-26	0-2	8/22/00	23	110	4.4		89	1300	2.7	1.7	ND	ND

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MUDDY RIVER RESTORATION PROJECT WARD'S POND VOLATILE PETROLEUM HYDROCARBON SEDIMENT SAMPLE ANALYSIS RESULTS (mg/kg)

Sample ID	Sample Depth (ft BGS)	Sample Date	C5-C8 Aliphatic Hydrocarbons	C9-C10 Aromatic Hydrocarbons	C9-C12 Aliphatic Hydrocarbons	Methyl tert-butyl ether	Benzene	Toluene	Ethylbenzene	m,p-Xylene	o-Xylene	Naphthalene
WD-SED-1	0-2	8/8/00	9.8	ND	25	ND	ND	ND	ND	ND	ND	ND
WD-SED-1	2-4	8/8/00	11	2	57	ND	ND	ND	ND	ND	ND	ND
WD-SED-1	6-8	8/8/00	8.2	ND	1.6	ND	ND	ND	ND	ND	ND	ND
WD-SED-2	0-2	8/4/00	6.0	ND	1.3	ND	ND	ND	ND	ND	ND	ND
WD-SED-2	6-8	8/4/00	6.5	ND	1.4	ND	ND	ND	ND	ND	ND	ND
WD-SED-2	8-10	8/4/00	10	ND	2.5	ND	ND	ND	ND	ND	ND	ND
WD-SED-3	0-2	10/18/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
WD-SED-4	0-2	8/4/00	4.9	ND	1.7	ND	ND	ND	ND	ND	ND	ND
WD-SED-4	6-8	8/4/00	7.8	ND	2.1	ND	ND	ND	ND	ND	ND	ND
WD-SED-5	0-2	8/3/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
WD-SED-5	4-6	8/3/00	ND	ND	ND	ND	ND	. ND	ND	ND	ND	ND
WD-SED-5	8-10	8/3/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
WD-SED-6	0-2	8/3/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
WD-SED-6	4-6	8/3/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
WD-SED-6	6-8	8/3/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

- = Not Analyzed ND = Not Detected

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MUDDY RIVER RESTORATION PROJECT WARD'S POND EXTRACTABLE PETROLEUM HYDROCARBON SEDIMENT SAMPLE ANALYSIS RESULTS (mg/kg)

Sample ID	Sample Depth (ft BGS)	Sample Date	C11-C22 Aromatic Hydrocarbons	C19-C36 Aliphatic Hydrocarbons	C9-C18 Aliphatic Hydrocarbons	2-Methyl- naphthalene	Acenaphthene	Acenaphthylene	Anthracene	Benzo(a) anthracene	Benzo(a)pyrene	Benzo(b) fluoranthene	Benzo(g,h,i) perylene	Benzo(k) fluoranthene	Chrysene	Dibenz(a,h) anthracene
WD-SED-1	0-2	8/8/00	ND	220	ND	ND	ND	ND	1.5	2.6	2.2	2.7	0.81	1.2	2.7	ND
WD-SED-1	2-4	8/8/00	ND	120	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND ND	ND	ND
WD-SED-I	6-8	8/8/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
WD-SED-2	0-2	8/4/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND ND
WD-SED-2	6-8	8/4/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
WD-SED-2	8-10	8/4/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND .	ND	ND	ND	ND
WD-SED-3	0-2	10/18/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
WD-SED-4	0-2	8/4/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
WD-SED-4	6-8	8/4/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
WD-SED-5	0-2	8/3/00	ND	ND	ND	ND	ND :	ND	ND	ND	ND	ND	ND	ND	ND	ND
WD-SED-5	4-6	8/3/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
WD-SED-5	8-10	8/3/00	ND	ND	ND	ND	ND	ND	0.49	1.3	1.0	3.5	0.55	1.3	1.4	ND
WD-SED-6	0-2	8/3/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
WD-SED-6	4-6	8/3/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.66	ND	ND	ND	ND
WD-SED-6	6-8	8/3/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

-- = Not Analyzed ND = Not Detected

MUDDY RIVER RESTORATION PROJECT WARD'S POND EXTRACTABLE PETROLEUM HYDROCARBON SEDIMENT SAMPLE ANALYSIS RESULTS (mg/kg)

Sample ID	Sample Depth (ft BGS)	Sample Date	Fluoranthene	Fluorene	Indeno(1,2,3- cd)pyrene	Naphthalene	Phenanthrene	Pyrene
WD-SED-1	0-2	8/8/00	7.2	0.79	0.93	ND	6.7	5.4
WD-SED-1	2-4	8/8/00	0.52	ND	ND	ND	ND	0.61
WD-SED-1	6-8	8/8/00	ND	ND	ND	ND	ND	ND
WD-SED-2	0-2	8/4/00	ND	ND	ND	ND	ND	ND
WD-SED-2	6-8	8/4/00	ND	ND	ND	ND	ND	ND
WD-SED-2	8-10	8/4/00	ND	ND	ND	ND	ND	ND
WD-SED-3	0-2	10/18/00	ND	ND	ND	ND	ND	ND
WD-SED-4	0-2	8/4/00	ND	ND	ND	ND	ND	ND
WD-SED-4	6-8	8/4/00	ND	ND	ND	ND	ND	ND
WD-SED-5	0-2	8/3/00	ND	ND	ND	ND	ND	ND
WD-SED-5	4-6	8/3/00	ND	ND	ND	ND	ND	ND
WD-SED-5	8-10	8/3/00	2.4	ND	0.59	ND	0.37	2.0
WD-SED-6	0-2	8/3/00	ND	ND	ND	ND	ND	ND
WD-SED-6	4-6	8/3/00	0.8	ND	ND	ND	0.57	0,66
WD-SED-6	6-8	8/3/00	ND	ND	ND	ND	ND	ND

-- = Not Analyzed
ND = Not Detected

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MUDDY RIVER RESTORATION PROJECT WARD'S POND PCB SEDIMENT SAMPLE ANALYSIS RESULTS (mg/kg)

	Sample								
	Depth	Sample	Aroclor						
Sample ID	(ft BGS)	Date	1016	1221	1232	1242	1248	1254	1260
WD-SED-1	0-2	0/0/00) TD	277	170				
		8/8/00	ND	ND	ND	ND	0.63	0.32	0.12
WD-SED-1	2-4	8/8/00	ND	ND	ND	ND	0.26	0.11	0.046
WD-SED-1	6-8	8/8/00	ND						
WD-SED-2	0-2	8/4/00				****		***	****
WD-SED-2	6-8	8/4/00	***						800
WD-SED-2	8-10	8/4/00		~~~					
WD-SED-3	0-2	10/18/00	ND						
WD-SED-4	0-2	8/4/00							
WD-SED-4	6-8	8/4/00							
WD-SED-5	0-2	8/3/00	ND						
WD-SED-5	4-6	8/3/00	ND						
WD-SED-5	8-10	8/3/00	ND						
WD-SED-6	0-2	8/3/00	ND						
WD-SED-6	4-6	8/3/00	ND						
WD-SED-6	6-8	8/3/00	ND						

Notes:

Notes.

--- ≈ Not Analyzed

ND = Not Detected

MUDDY RIVER RESTORATION PROJECT WARD'S POND PESTICIDE SEDIMENT SAMPLE ANALYSIS RESULTS (mg/kg)

	Sample													Endo-	
	Depth	Sample					alpha-	alpha-				Endo-	Endo-	sulfan	
Sample ID	(ft BGS)	Date	4,4'-DDD	4,4'-DDE	4,4'-DDT	Aldrin	chlordane	внс	beta-BHC	delta-BHC	Dieldrin	sulfan I	sulfan II		Endrin
WD-SED-1	0-2	8/8/00	0.13	0.11	ND	ND	ND	ND	0.092	ND	177).TD	2.70		
WD-SED-1	2-4	8/8/00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
WD-SED-1	6-8	8/8/00	ND	ND	ND	ND	ND	ND	ND	ND ND	ND	ND	ND	ND	ND
WD-SED-2	0-2	8/4/00			140		140				ND	ND	ND	ND	ND
WD-SED-2	6-8	8/4/00								_		-	****		****
WD-SED-2	8-10	8/4/00	90m												
WD-SED-3	0-2	10/18/00	ND	ND	ND	ND	ND	ND	ND ND	AID.					
WD-SED-4	0-2	8/4/00		110	-	ND	ND			ND	ND	ND	ND	ND	ND
WD-SED-4	6-8	8/4/00													
WD-SED-5	0-2	8/3/00	ND	ND	ND	ND	ND ND	ND ND	ND					***	
WD-SED-5	4-6	8/3/00	ND	ND	ND	ND	ND	ND ND	2 120	ND	ND	ND	ND	ND	ND
WD-SED-5	8-10	8/3/00	ND	ND	ND	ND	ND	עט מא	ND	ND	ND	ND	ND	ND	ND
WD-SED-6	0-2	8/3/00	ND	ND	ND	ND	ND		ND	ND	ND	ND	ND	ND	ND
WD-SED-6	4-6	8/3/00	ND	ND	ND	עם מא		ND	ND	ND	ND	ND	ND	ND	ND
WD-SED-6	6-8	8/3/00	ND	ND	ND ND	ND ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
		0/3/00	ND	IND	מא	IND	ND	ND	ND	ND	ND	ND	ND	ND	ND

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MUDDY RIVER RESTORATION PROJECT WARD'S POND PESTICIDE SEDIMENT SAMPLE ANALYSIS RESULTS (mg/kg)

	Sample										
	Depth	Sample	Endrin	Endrin	gamma-	gamma-	Hepta-	Heptachlor	Methoxy-		Technical
Sample ID	(ft BGS)	Date	aldehyde	ketone	BHC	Chlordane	chlor	epoxide	chlor	Toxaphene	Chlordane
WD-SED-1	0-2	8/8/00	ND	ND	ND	ND	ND	ND	ND	ND	ND
WD-SED-1	2-4	8/8/00	ND	ND	ND	ND	ND	ND	ND	ND	ND
WD-SED-1	6-8	8/8/00	ND	ND	ND	ND	ND	ND	ND	ND	ND
WD-SED-2	0-2	8/4/00							140	140	1410
WD-SED-2	6-8	8/4/00				- Crowns			•••		
WD-SED-2	8-10	8/4/00						2000			
WD-SED-3	0-2	10/18/00	ND	ND	ND	ND	ND	ND	ND	ND	ND
WD-SED-4	0-2	8/4/00									
WD-SED-4	6-8	8/4/00									
WD-SED-5	0-2	8/3/00	ND	ND	ND	ND	ND	ND	ND	ND	ND
WD-SED-5	4-6	8/3/00	ND	ND	ND	ND	ND	ND	ND	ND	ND
WD-SED-5	8-10	8/3/00	ND	ND	ND	ND	ND	ND	ND	ND	ND
WD-SED-6	0-2	8/3/00	ND	ND	ND	ND	ND	ND	ND	ND	ND
WD-SED-6	4-6	8/3/00	ND	ND	ND	ND	ND	ND	ND	ND	ND
WD-SED-6	6-8	8/3/00	ND	ND	ND	ND	ND	ND	ND	ND	ND

MUDDY RIVER RESTORATION PROJECT WARD'S POND INORGANIC SEDIMENT SAMPLE ANALYSIS RESULTS (mg/kg)

	Sample Depth	Sample				TCLP		TOUR				
Cample ID				D .		Chromium		TCLP Lead				
Sample ID	(ft BGS)	Date	Arsenic	Barium	Cadmium	(mg/L)	Chromium	(mg/L)	Lead	Mercury	Selenium	Silver
WD-SED-1	0-2	8/8/00	ND	69	1.8		34	1.1	1000	0.36	ND .	ND
WD-SED-1	2-4	8/8/00	ND	ND	ND		11	ND	170	0.21	ND	ND
WD-SED-1	6-8	8/8/00	ND	ND	ND		13		24	0.031	ND	ND
WD-SED-2	0-2	8/4/00	ND	43	ND	_	14		28	0.12	ND	ND
WD-SED-2	6-8	8/4/00	ND	ND	ND		13		ND	ND	ND	ND
WD-SED-2	8-10	8/4/00	ND	ND	ND		25		16	ND	ND	ND
WD-SED-3	0-2	10/18/00	ND	ND	ND		9.6		66	0.085	ND	ND
WD-SED-4	0-2	8/4/00	ND	31	ND		17		12	ND	ND	ND
WD-SED-4	6-8	8/4/00	ND	ND	ND		9.4		ND	ND	ND	ND
WD-SED-5	0-2	8/3/00	11	43	ND	_	10	ND	130	0.14	ND	ND
WD-SED-5	4-6	8/3/00	ND	40	ND		14	19	190	ND	ND	ND
WD-SED-5	8-10	8/3/00	ND	30	ND		26		42	0.034	ND	ND
WD-SED-6	0-2	8/3/00	ND	ND	ND		8,5		28	0.078	ND	ND
WD-SED-6	4-6	8/3/00	ND	ND	ND		9.1		40	0.091	ND	ND
WD-SED-6	6-8	8/3/00	ND	ND	ND		8.7		12	ND	ND	ND

Notes

-- = Not Analyzed
ND = Not Detected

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Notes: ND = Not Detected Samples not shown were not analyzed for Total Phosphorus

Total Phosphorus	15	2	Q	25	R	262	324	433	291	324	700	520	790	096	009	1000	860	1000	1900	086	396	362	621	451	634	1290	1090	684	0/97	1600	1240	2840	614	2870	889	3180	1600	801
Sample Depth (ft BGS)	0-2	4-6	0-2	2.4	12-14	0-2	4-6	8-9	2-4	9 4-6	0-10	0-5	0-2	0-2	0-2	0-5	0-5	2-4	4-6	2-4	0-2	2-4	8-9	0-5	2-4	0-5	77	0-5	7 0	2-0	4-6	0-5	24	0-2	9-4	0-5	2.4	4-6
Sample ID	BBF-SED-19	BBF-SED-19	BBF-SED-23	BBF-SED-23	BBF-SED-23	RW-SED-01	RW-SED-01	RW-SED-01	1	RW-SED-02	1 1	RW-SED-12	RW-SED-13	RW-SED-16	RW-SED-17	RW-SED-18	RW-SED-19	RW-SED-19	RW-SED-19	RW-SED-21	SED-	RW-SED-23	RW-SED-23	RW-SED-25	RW-SED-25	SED-	o o	RW-SED-29	RW-SED-29	CED		RW-SED-33	RW-SED-33	RW-SED-35	RW-SED-35	RW-SED-37	RW-SED-37	2

MUDDY RIVER RESTORATION PROJECT TOTAL PHOSPHORUS SEDIMENT SAMPLE ANALYSIS RESULTS $(\mathfrak{mg/kg})$

MUDDY RIVER RESTORATION PROJECT PAINT FILTER SEDIMENT SAMPLE ANALYSIS RESULTS

Percent Moisture	24.7	12.1	17.9	21.3	41.6	52.7	66.2	52.6	18.3	27.6	49.6	1	- 1	1	17.2	16.3
Liquids Present	Z	Υ.	Z	ż	Z	Y	Y	z	Y	z	z	z	Z	z	¥	z
Sample Date	00/110/00	07/21/00	07/25/00	07/28/00	08/01/00	00/90/60	00/20/60	08/14/00	07/27/00	08/01/00	08/18/00	08/10/00	08/18/00	08/30/00	08/03/00	00/60/80
Sample ID	BBF-PF-01	BBF-PF-02	BBF-PF-03	BBF-PF-04	BBF-PF-05	BBF-PF-06	BBF-PF-07	BBF-PF-10	CG-PF-01	LP-PF-01	LP-PF-02	RW-PF-01	RW-SED-PF-3	RW-PF-03	WD-PF-1	WL-SED-PF

Notes:
--- Percent Moisture results not reported







APPENDIX G WATER QUALITY



MUDDY RIVER PHASE I FLOOD CONTROL, WATER QUALITY AND HABITAT ENHANCEMENT PROJECT

WATER QUALITY SAMPLING REPORT OCTOBER/DECEMBER 2000

1.0 INTRODUCTION

Jason M. Cortell & Associates Inc. (CORTELL) presents this Water Quality Sampling Report conducted on the Muddy River in October and December 2000. The objective of this report is to provide the most current and synoptic water quality data along the Muddy River for use in the development of construction mitigation measures as well as the Phase I Project permitting purposes. The data collected as part of this recent sampling has allowed for the expansion of the existing limited water quality data base and provided data for additional water quality parameters which previously had not been analyzed. Attachment A contains correspondence with the Massachusetts Department of Environmental Protection (DEP) that resulted in the agency's approval of the Muddy River Water Quality Sampling Plan. The Muddy River and its associated water bodies have been designated as Class B surface waters by the DEP. Class B waters are considered swimmable and fishable.

1.1 Field Activities

On October 4, and 6, and December 14, 2000, CORTELL personnel collected water quality samples during dry (October 4, 2000) and wet weather conditions (October 6 and December 14, 2000). Instantaneous grab samples were obtained from each of the Muddy River sections between roadway crossings and from eight (8) of the major outfalls. The sampling locations included the following:

- Muddy River at Agassiz Road Bridge
- Muddy River at Longwood Avenue Bridge
- Muddy River at Willow Pond Road Bridge
- Outfalls:
 - 1.) Boston Gate House
 - 2.) Emmanuel College Drain
 - 3.) Longwood Avenue Drain
 - 4.) Tannery Brook Drain
 - 5.) Huntington Avenue Drain
 - 6.) Village Brook Drain
 - 7.) Daisy Field Drain
 - 8.) Chestnut Street Drain

The sampling locations are depicted in Figure 1. Summarized field notes are provided in Table 1.

Water quality samples were collected by CORTELL, securely packed in a chilled cooler (approx. 4°C) along with a Chain of Custody, and hand-delivered to Alpha Analytical Laboratories of Westborough, MA., a Commonwealth of Massachusetts Certified Analytical Laboratory.

Water samples were collected at each of the above referenced locations during both sampling events and analyzed for the following:

- Fecal Coliform Bacteria
- Fecal Streptococcus Coliform Bacteria
- Total Suspended Solids (TSS)
- True and Apparent Color
- Turbidity
- Alkalinity
- Acidity
- Total Phosphorus
- Orthophosphate Phosphorus
- Ammonia Nitrogen
- Nitrate-Nitrite Nitrogen

In addition, water samples were collected at the Willow Pond Outlet, the trash rack in the Riverway adjacent to the Back Bay Yard, and at Ipswich Street and analyzed for total lead content during the dry and first wet weather sampling event. Dissolved oxygen (DO), pH and temperature were also measured in the field during each sampling event.

2.0 FIELD and ANALYTICAL RESULTS

2.1 Water Quality Data for Dry Conditions (October 4, 2000)

As previously noted, dissolved oxygen (DO), pH and temperature were analyzed by CORTELL personnel in the field. The following summarizes the field findings:

	DO (mg/l)	%Sat.	pH (s.u.)	Temperature (°C)
Boston Gatehouse	9.0	89	7.8	15
Agassiz Road Bridge	7.5	75	8.2	16.5
Longwood Ave. Bridge	7.2	72	7.6	16.5
Longwood Ave. Drain	8.2	83	8.0	16.5
Tannery Brook Drain	9.2	95	7.6	17
Village Brook Drain	11.0	115	7.9	17
Daisy Field Drain	10.8	105	7.4	15
Willow Pond Road	8.6	91	7.7	17.5
Huntington Ave. Drain	11.2	118	7.6	· 18
Water Quality Standard	>5.0	>75	6.5 - 8.3	<20℃

Field analysis indicated that during dry weather conditions, excluding the percent saturation of dissolved oxygen at the Longwood Avenue Bridge, the Muddy River and its associated water bodies comply with the DEP Class B Surface Water Quality Standards. The slight decrease in percent saturation of dissolved oxygen at the Longwood Avenue Bridge was not considered a significant exceedance of the current water quality standards.

Analytical results are tabulated on Table 2. Laboratory reports are provided in Attachment B.

Due to the extremely slow-moving nature of the Muddy River, especially during periods of dry weather, total suspended solids were low during sampling with the highest concentration of solids detected at the Daisy Field Drain (38 milligrams per liter). Two locations, the Muddy River at the Longwood Avenue Bridge and the Huntington Avenue Drain, did not contain any suspended solids. Turbidity was also observed at low levels as the Tannery Brook Drain produced the highest turbidity concentration of 19 Nephelometric Turbidity Units (NTU). The remainder of sampling locations were observed as relatively clear as evidenced by the next highest analytical result of 5.5 NTU at the Longwood Avenue Drain.

Four of the nine sampling locations contained fecal coliform levels above the DEP Water Quality Standard for Class B Surface Waters of 200 colonies per 100 milliliters (col/100 ml). The highest levels obtained, 500 col/100 ml, were detected at the Agassiz Road Bridge and the Tannery Brook Drain. 300 col/100 ml of fecal coliform was detected at both the Boston Gate House and the Daisy Field Drain. Three of the four previously noted fecal coliform locations are areas of heavy wildlife activity which primarily consists of geese infestation. Fecal streptococcus coliform levels were relatively low however, the Daisy Field Drain and Willow Pond Road samples contained 300 and 240 col/100 ml, respectively. Fecal streptococcus is generally an indicator of human fecal waste material. High streptococcus levels at these locations may be the result of illegal sanitary sewer connections upstream in each respective drainage system.

Lead was not detected in any of the three samples collected.

The dry weather water quality data showed some coloration of water due to dissolved matter, most likely humic materials generated from decaying leaves and wetland soil. The alkalinity values indicated that the water was moderately buffered against changes in pH with the Tannery Brook Drain and the Daisy Field Drain having the highest alkalinity. The inorganic nitrogen nutrient levels were high in the Daisy Field Drain as evidenced by excessively high nitrogen concentrations. The Tannery Brook and Daisy Field Drains were also noted to contribute the highest phosphorus concentrations.

2.2 Water Quality Data for Wet Weather Conditions

2.2.1 October 6, 2000

The October 6, 2000 wet weather sampling event was conducted at the end of a light overnight rainfall (approximately 0.3 inches as reported by the National Weather Service). Dissolved oxygen (DO), pH and temperature were analyzed by CORTELL personnel in the field during wet weather conditions. The following summarize the field findings:

	DO (mg/l)	%Sat.	pH (s.u.)	Temperature (°C)
Boston Gatehouse	8.6	84	7.6	14.5
Agassiz Road Bridge	9.6	95	7.6	15
Longwood Ave. Bridge	9.4	93	7.5	15
Longwood Ave. Drain	10.4	104	7.4	16
Tannery Brook Drain	9.6	95	7.7	· 15
Village Brook Drain	8.8	85	7.8	15
Daisy Field Drain	11.8	118	10.4	15.5
Willow Pond Road	8.6	84	7.8	15
Huntington Ave. Drain	9.0	89	7.4	15
Chestnut Street Drain	NS	NA	7.8	15
Emmanuel College Drain	8.4	82	7.8	15.5
Water Quality Standard	>5.0	>75	6.5 - 8.3	<20℃

Field analysis indicated that during this wet weather event, excluding pH at the Daisy Field Drain, the Muddy River and its associated water bodies comply with the DEP Class B Surface Water Quality Standards. Dissolved oxygen (DO) could not be measured in the Chestnut Street Drain due to the limited depth of flow within the drainage system. According to proper water quality sampling protocol, DO readings should be obtained in-situ.

Analytical results are tabulated on Table 2. Laboratory reports are provided in Attachment B.

Total suspended solids (TSS) concentrations were elevated due to the additional flow and increased velocity of discharges to the Muddy River however, not as high as would be expected during a rainfall event's first flush. The highest TSS levels were detected at concentrations of 640 and 150 milligrams per liter (mg/l) at the Huntington Avenue Drain and Willow Pond Road, respectively. The remaining locations ranged in TSS levels from non-detect (ND) at both the Longwood Avenue Drain and Village Brook Drain, to 80 mg/l at the Agassiz Road Bridge. Turbidity was also observed at generally elevated levels throughout with the highest reading of 170 Nephelometric Turbidity Units (NTU) detected at the Huntington Avenue Drain.

Excluding the Boston Gate House, the Longwood Avenue Bridge and the Village Brook Drain, each sampling location exceeded the current DEP Water Quality Standard for

Class B Surface Waters of 200 colonies per 100 milliliters for fecal coliform. Similar results were detected for fecal streptococcus coliform levels however only levels at the Longwood Avenue Bridge and the Village Brook Drain were within Class B Standards. Neither fecal coliform nor fecal streptococcus coliform, an indicator of human fecal waste, were detected at the Village Brook Drain thereby confirming the effectiveness of the recent elimination measures of illegal sanitary sewer connections to the Village Brook drainage system. The highest levels obtained for both coliform bacteria were detected at the Daisy Field Drain which, as previously noted, is a prime area for geese infestation. Other areas displayed elevated levels of both coliform bacteria due to wildlife as well as human (homeless) activity (Agassiz Road Bridge area/Back Bay Fens). Other areas containing elevated levels of fecal streptococcus coliform bacteria may have illegal sanitary sewer connections upstream in each respective drainage system.

Lead was not detected in any of the three samples collected.

The October 6, 2000 data show approximately the same levels of dissolved coloration in the water as observed in the dry weather analysis. However, the apparent color values were higher due to suspended materials in stormwater. The buffering capacity (alkalinity) of the water also remained at adequate levels, although there was a slight overall decline. While the Longwood Avenue Drain and the Tannery Brook Drain both contributed elevated inorganic nitrogen and phosphorus nutrient concentrations to the Muddy River during the first wet weather sampling event, the Daisy Field Drain continued to contain the highest nutrient concentrations.

2.2.2 December 14, 2000

The December 14, 2000 wet weather sampling event was during a steady, light to moderate rainfall which included snow, ice and slush (approximately 0.88 inches of precipitation as reported by the National Weather Service). Dissolved oxygen (DO), pH and temperature were analyzed by CORTELL personnel in the field during wet weather conditions. The following tables summarize the field findings:

	DO (mg/l)	%Sat.	pH (s.u.)	Temperature (°C)
Boston Gatehouse	10.8	80	8.0	3.5
Agassiz Road Bridge	9.8	75	7.8	4.5
Longwood Ave. Bridge	13.3	98	6.8	3
Longwood Ave. Drain	13.3	98	7.1	3
Tannery Brook Drain	13.2	97	7.3	3
Village Brook Drain	12.8	97	7.1	4
Daisy Field Drain	12.6	95	7.2	3.75
Willow Pond Road	11.8	87	7.3	3
Huntington Ave. Drain	11.6	87	6.9	3.5
Chestnut Street Drain	12.5	92	7.3	3.2
Emmanuel College Drain	10.2	76	7.1	3.5
Water Quality Standard	>5.0	>75	6.5 - 8.3	<20℃

Field analysis indicated that during this wet weather event, the Muddy River and its associated water bodies comply with the DEP Class B Surface Water Quality Standards. Because the dissolved oxygen concentrations in the storm water drains were in excess of saturation values, the meter readings were checked against two Winkler titration analyses that were conducted in the field. The Winkler titration results were within less than one-tenth of one mg/l of the meter readings.

Analytical results are tabulated on Table 2. Laboratory reports are provided in Attachment B.

Total suspended solids (TSS) concentrations were elevated due to the higher flow and increased velocity of discharges to the Muddy River. The highest TSS levels were detected at concentrations of 210 and 170 milligrams per liter (mg/l) at the Huntington Avenue Drain and the Chestnut Street Drain, respectively. The remaining locations ranged in TSS levels from non-detect (ND) at the Boston Gatehouse, to 62 mg/l at the Longwood Avenue Bridge. Turbidity was also observed at generally elevated levels throughout with the highest reading of 68 Nephelometric Turbidity Units (NTU) detected at the Huntington Avenue Drain. Again, turbidity levels were not as high as would have been expected due to the sampling occurring some time after the first flush of the rainfall event.

Excluding the Boston Gate House, the Agassiz Road Bridge and the Village Brook Drain, each sampling location exceeded the current DEP Water Quality Standard for Class B Surface Waters of 200 colonies per 100 milliliters (col/100 ml) for fecal coliform. Similar results were detected for fecal streptococcus coliform levels with Class B Standards exceedances noted at the same locations. In fact, fecal streptococcus coliform, an indicator of human fecal waste, was detected at non-detectable levels at the Village Brook Drain thereby confirming the effectiveness of the recent elimination measures of illegal sanitary sewer connections to the Village Brook drainage system. The highest fecal coliform levels were detected at the Longwood Avenue Bridge, the Tannery Brook Drain and the Chestnut Street Drain at concentrations of 16,000 col/100 ml. Fecal streptococcus levels of 30,000 col/100 ml were observed at both the Longwood Avenue Bridge and Drain. Other notable concentrations of fecal streptococcus included the Tannery Brook Drain (24,000 col/100 ml), the Chestnut Street Drain (16,000 col/100 ml) and the Daisy Field Drain (9,000 col/100 ml). These areas displaying elevated levels of both coliform bacteria can likely be attributed to wildlife (geese infestation) as well as human (homeless) activity (Agassiz Road Bridge area/Back Bay Fens). Other areas, especially within drainage outlets, that contain elevated levels of fecal streptococcus coliform bacteria may have illegal sanitary sewer connections upstream in each respective drainage system.

The December 14, 2000 data show approximately the same levels of dissolved coloration in the water as observed in the dry weather analysis. However, the apparent color values were higher due to suspended materials in stormwater. The buffering capacity (alkalinity) of the water also remained at adequate levels, although there was a

slight overall decline as compared to dry weather conditions. While both the Longwood Avenue Bridge and Drain contributed elevated inorganic nitrogen and phosphorus nutrient concentrations to the Muddy River during this wet weather sampling event, the Daisy Field Drain continued to contain the highest nutrient concentrations.

3.0 RECOMMENDATIONS for FURTHER WATER QUALITY MONITORING

The historical water quality database for the Muddy River is scattered and lack a consistent monitoring effort throughout the drainage system. The database includes the following data reporting:

Division of Water Pollution Control (now the MA DEP)	1974
Division of Water Pollution Control (now the MA DEP)	1981
Division of Water Pollution Control (now the MA DEP)	1986
Army Corps of Engineers	1992
Northeastern University	1995
Charles River Watershed Association (CRWA)	1998

In addition, since 1999, the U.S. Geological Survey (USGS) has operated a monitoring station for continuous flow, water temperature, specific conductance and random water quality parameters at the Netherlands Road Bridge (USGS Gage MA01104683). Due to budget constrictions, the station did not consistently monitor the River (i.e. daily, monthly, quarterly, etc.) and has not provided data since September 27, 1999.

The water quality monitoring data reported herein has resulted in the finding of exceedances of the DEP Class B Water Quality Criteria for percent oxygen saturation at the Longwood Avenue Bridge (dry weather conditions), pH in the Daisy Field Drain (first wet weather sampling event – October 6, 2000), and fecal coliform and fecal streptococcus coliform bacteria (during each sampling event) at several locations within the Muddy River system. According to the New England Interstate Water Pollution Control Commission (NEIWPCC) in their Fall/Winter 2000 newsletter, the United States Environmental Protection Agency (EPA) will be publishing regional nutrient criteria in early 2001. It is likely at this time that additional Muddy River water quality exceedances will become apparent when said criteria are published.

Based on the findings reported herein, it is recommended that a long-term water quality monitoring program be instituted. Water quality sampling is recommended to occur on a quarterly basis. The sampling would be conducted a the following locations:

Within the Muddy River at:

Ipswich Street Agassiz Road Boston Gate Houses Fens Bridge Longwood Avenue Bridge
Outlet of Leverett Pond
Outlet of Willow Pond
Outlet of Wards Pond

Drainage Outfalls:

Emmanuel College Drain Longwood Avenue Drain Tannery Brook Drain Huntington Avenue Drain Village Brook Drain Daisy Field Drain Chestnut Street Drain

In addition to the recommended monitoring of the above referenced Muddy River locations, it is also suggested that investigations be conducted further up into the drainage system as a whole to determine potential sources of non-domestic sewage nutrients.

During each quarter, water quality samples would be collected during a dry period (no rainfall in the past 96 hours), during precipitation, and the day following a precipitation event. The rationale behind this frequency of sampling is to obtain seasonal data preceding precipitation (rain or snow), and to monitor the impact to water quality during and after an event. Therefore, in any given year, up to 12 sampling events could occur at each sampling location.

Samples should be collected and analyzed for the following parameters:

Fecal Coliform Bacteria
Fecal Streptococcus Coliform Bacteria
Total Suspended Solids (TSS)
True and Apparent Color
Turbidity
Alkalinity
Acidity
Total Phosphorus
Orthophosphate Phosphorus
Ammonia Nitrogen
Nitrate-Nitrite Nitrogen

Field monitoring for pH, temperature and dissolved oxygen should also be conducted during any and all sampling.

It is also proposed that the sampling and analysis be conducted by the Project Proponents commencing immediately after the DEIR is filed.

It is assumed that investigations of the Tannery Brook Drain, Longwood Avenue Drain and Daisy Field Drain will be conducted by the Boston Water and Sewer Commission and/or the Town of Brookline as appropriate.







Table 1 Muddy River Water Quality Sampling Summary of Field Sampling Notes

			Temp.	Hd	00		
Location	Date	Time	(°C)	(S.U.)	(mg/l)	% Sat. Notes	Notes
Boston Gate House	10/4/00	10:08 AM	15°	7.8	9.0	89	89 no dry weather flow observed
Agassiz Bridge	10/4/00	10:30 AM	16.5°	8.2	7.5	75	
Emmanuel College Drain	10/4/00	NS	NS	NS	NS	¥.	NA dry, no flow observed
MR @ Longwood Ave Bridge	10/4/00	12:30 PM	16.5°	7.6	7.2	72	
Longwood Ave. Drain	10/4/00	12:35 PM	16.5°		8.2	83	83 strong urine odor; no base flow
							evident; significant mosquito activity
Tannery Brook Drain	10/4/00	1:30 PM	170	9.7	9.5	95	95 significant mosquito activity
Huntington Ave. Drain	10/4/00	1:50 PM	18°	7.6	11.2	118	118 significant volume of H2O heard entering riverway upstream under
							Huntington Ave.; very low flow
Village Brook Drain	10/4/00	2:15 PM	170	7.9	11.0	115	
Daisy Field Drain	10/4/00	2:35 PM	15°	7.4	10.8	105	105 significant mosquito activity; sign posted area sprayed for West Nile Virus
MR @ Willow Pond Road Bridge	10/4/00	2:50 PM	17.50	7.7	8.6	91	
Chestnut St. Drain	10/4/00	3:00 PM	NS	NS	NS	NA	NA No flow
MR @ Boston Gate House	10/6/00	2:10 PM	14.5°	9.7	8.6	84	
Agassiz Bridge	10/9/01	2:30 PM	15°		9.6	95	
Emmanuel College Drain	10/9/01	1:40 PM	15.5°	7.8	8.4	82	82 slight sheen on standing water in
3.							basin; packing material (popcorn), plastic bottles & cups obsv'd; food
							wastes (cooked shrimp) also obsv'd
MR @ Longwood Ave Bridge	10/9/01	1:05 PM	15°	7.5	9.4	93	
Longwood Ave. Drain	10/6/00	1:15 PM	16°	7.4	10.4	104	104 Petroleum odor noted
Tannery Brook Drain	10/9/00	11:50 AM	120		9.6	CR	
Huntington Ave. Drain	10/9/00	11:15 AM	15°	7.4	9.0	89	
Village Brook Drain	10/9/00	10:50 AM	15,	8.7	χ. Σ. α	82	
MB & Willem Bood Bood Bridge	10/9/00	10:30 AM	15.5	10.4	2.1.0	118	
MK @ VVIIIOW FOND Koad Bridge	10/6/00	10:05 AM	15%	7.8	Ø.6	84	84
Cleaning of Diagram	0000	9.50 AIM	2		2		obtained due to the limited (1"), high
MR @ Boston Gate House	12/14/00	2:10 PM	3.5°	8.0	10.8	80	velocity, wet weather now.
Agassiz Bridge	12/14/00	2:30 PM	4.5°	7.8	9.8	75	
W Emmanuel College Drain	12/14/00	1:40 PM	3.5°	7.1	10.2	92	
MR @ Longwood Ave Bridge	12/14/00	1:05 PM	30	6.8	13.3	98	
Longwood Ave. Drain	12/14/00	1:15 PM	3°	7.1	13.3	98	
Tannery Brook Drain	12/14/00	11:50 AM	30	7.3	13.2	97	
Huntington Ave. Drain	12/14/00	11:15 AM	3.50	6.9	11.3	87	
Village Brook Drain	12/14/00	10:50 AM	40	7.1	12.8	97	
Daisy Field Drain	12/14/00	10:30 AM	3.75°	7.2	12.6	95	
Road Bridge		10:05 AM	သိ	7.3	11.8	87	
Chestnut St. Drain	12/14/00	9:28 AM	3.20	7.3	12.5	92	

Notes: MR - Muddy River
s.u. - standard units
mg/l - milligrams per liter
NS - not sampled
NA - not applicable



Table 2 Muddy River Water Quality
Dry and Wet Weather Conditions
October & December 2000

Turbidity NTU 12 38 39 55 19 31 21 3.5 4.2 NA NA NA A A A A A A A A A A A A A A A							Dry Conditions October 4, 2000							
Turbidity NTU 1.2 3.8 3.9 5.5 19 3.1 2.1 3.5 4.2 NA			Boston Gatehouse	Agassiz Road Bridge	Longwood Ave. Bridge	Longwood Ave. Drain	Tannery Brook Drain	Village Brook Drain	Daisy Field Drain	Willow Pond Road	Huntington Ave Drain	Inquich Street	Back Bay Vard	Willow Pond Outle
True Color APC U 18 3.0 3.9 5.5 19 3.1 2.1 3.5 4.2 NA NA NA APAPARENT Color APC U 23 27 18 12 12 8 12 18 NA NA NA ACAIGNY MPC 10 18 18 12 12 12 8 12 18 NA NA NA NA ACAIGNY MPC 10 18 18 12 12 12 8 12 18 NA		Units	تحسينات الم							TIMON I ONG ICORG	Huntington Ave. Drain	ipswich street	Dack Day Taru	Willow Porid Oube
True Color A P C U 18 18 18 17 18 17 20 19 3.1 2.1 3.5 4.2 NA		NTU	1.2	. 38	3.0	6.5	40	2.0						
Apparent Color AP C U 23 27 18 22 65 16 18 23 17 NA NA NA Color Phosphate Phosphorus Phosphorus Phosphorus Pecal Colifor MD ND	True Color	APCU	18	18	17	3.5	19		2.1	3.5	4.2			NA NA
Acaditry	Apparent Color	APCU	23	27	10	10	12	12	8	12	18	NA	NA NA	NA NA
No No No No No No No No	Acidity			AID.	10	22		16		23	17	NA	NA.	NA NA
Total Suspended Solids mg/1 8.8 20 ND 8.5 39 65 27 4.3 NA NA NA NA NA NA NA N				NU 00		ND ND	ND	ND	ND :	ND	ND	NA	NA	NA NA
\text{\te\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\texict{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\texict{\text{\texict{\text{\text{\texit{\texi\texit{\text{\texi{\texi{\texi\texi{\texit{\texi\texi{\texit{\texi\texit{\texi{\texi{\texi{\texi{\texi{\texi{\texi{\texi{\texit{\				33		48	62	39	65	27	43	NA	NA.	NA NA
ND ND O.519 O.576 O.622 O.597 O.157 ND O.759 NA NA NA O.47 O.32 O.45			20		64	21	5.4	38	6.6	ND	NA	NA	NA.	
NA NA NA NA NA NA NA NA					0.519	0.576	0.622	0.597	0 157	ND				NA.
OLD Principle OLD OLD		mg/l		0.32	0.45	1	1.7	0.29	5.8					NA NA
Printing Photosphate Photosphorus mg/l ND ND 0.02 0.02 0.02 0.05 0.05 ND 0.05 NA NA NA NA NA NA NA N		mg/l	0.05	0 05	0.11	0.14	0.45							NA NA
			ND ND	ND	0.02	0.02								NA NA
ieal Streptococcus Coliform MPN/100 ml 30 21 ND 2 80 ND 300 23 ND NA NA NA NA	ecal Coliform	MPN/100 ml	300	500		3								NA NA
2 80 NU 300 240 ND NA NA	ecal Streptococcus Coliforn	MPN/100 ml	30			2	000							NA NA
OGBI LASE MA NA	otal Lead	mo/l	NA	NA NA			80		300			NA	NA	NA NA

							October 6, 2 Wet Conditi								-
		Boston Gatehouse	Agassiz Road Bridge	Longwood Ave. Bridge	Longwood Ave. Drain	Tannery Brook Drain	Village Brook Drain	Daisy Field Drain	Willow Pond Road	Huntington Ave. Drain	Chestnut St. Drain	Emmanuel College Drain	lpswich Street	Back Bay Yami	Willow Pond Outle
	Units						1	T T	1				- powiet outco	Dack Day Tard	THIOW FOILD OUD
Turbidity	NTU	2.6	10	12	11	14	4.7	11	42	470					
True Color	APCU	18	23	18	27	23	18	22	12	170	18	34	NA NA	NA NA	NA NA
Apparent Color	A.P.C.U	24	72	56	E0	52	10		23	19	22	18	NA NA	NA NA	NA
Acidity	mg CaCO3/L	ND	ND	800	30		16 .	72	52	180	85	80	NA NA	NA NA	NA NA
Alkalinity (Total)	mg CaCO3/L	37	30	21	ND	ND ND	ND	ND	ND	ND ND	ND	2	NA NA	NA NA	NA NA
Total Suspended Solids	mad	5.6	80	31	31	20	37	40	19	34	20	16	NA NA	NA	NA NA
Ammonia Nitrogen	mad	ND ND		11	ND	11	ND	8.6	150	640	5.8	43	NA NA	NA NA	NA NA
Nitrogen (Nitrate/Nitrite)			0.093	0.5	0.38	0.246	0.632	1.29	0.103	0.637	0.177	0.195	NA.	NA.	NA
	mg/i	0.55	0.55	0.64	2.6	1.1	0.46	3.1	0.45	0.71	0.85	0.64	NA.	NA.	NA
Total Phosphorus	mg/I	0.04	0.27	0.15	0.11	0.14	0.13	0.4	0.29	1	0.08	0.18	NA.	NA.	NA NA
Orthophosphate Phosphorus		ND	ND	0.05	0.04	0.07	0.06	0.23	0.01	0.02	0.03	0.01	NA NA	NA NA	NA NA
	MPN/100 ml or col/100 ml		1,600	49	1,200 (col/100 ml)	6,500 (col/100 ml)	ND (col/100 ml)	22,000 (col/100 mi)		>1.600	2,000 (col/100 ml)	2,000 (col/100 ml)	NA NA		
Fecal Streptococcus Coliform	MPN/100 ml	500	>1,600	22	>1,600	>1,600	ND	>1,600	>1,600	900	2,000 (000 100 118)			NA	NA
Total Lead	mg/l	NA NA	NA	NA NA	NA	NA.	NA	NA NA	-1,000	800	NA NA	240 NA	NA ND	NA ND	NA ND

						ecember 14, 2000 Wet Conditions						
		Boston Gatehouse	Agassiz Road Bridge	Longwood Ave. Bridge	Longwood Ave. Drain	Tannery Brook Drain	Village Brook Drain	Daisy Field Drain	Willow Pond Road	Huntington Ave. Drain	Chestnut St. Drain	Emmanuel College Drain
	Units								1			
urbidity	NTU	6.7	5.0	54	42	45	24	67	15	68	64	27
rue Color	A.P.C.U.	ND	13	17	12	17	6.0	23	7.0	6.0	24	7.0
pparent Color	APCU	19	22	48	48	39	47	90	27	90	39	38
cidity	mg CaCO3/L	ND ND	ND	2.0	ND	ND	ND	ND	ND	2.0	ND ND	
kalinity (Total)	mg CaCO3/L	40	40	17	8.2	18	24	11	35			ND
otal Suspended Solids	mg/l	ND	6.6	62	45	40	18	52	12	41	12	32
mmonia Nitrogen	mg/l	0.254	0.344	0.659	0.549	0,510	0.465	0.553	0.083	210	170	19
trogen (Nitrate/Nitrite)	ma/l	0.47	0.50	0.39	0.32	0.36	0.34	0.553	1.083	0 551	0.407	0.481
tal Phosphorus	mo/l	0.07	0.06	0.17	0.19	0.16	0.14	0.00		0.54	. 0.35	0.43
thophosphate Phosphorus	mo/i	0.03	0.01	0.03	0.07	0.04	0.04		0.11	0.28	0.35	0.12
cal Coliform	MPN/100 ml	<20	<20	16,000				0.09	ND	0.01	0.05	0.02
cal Streptococcus Coliform		<20	40	30,000	5,000 30.000	16,000 24,000	70 <20	3,000 9.000	500 330	3,000 230	16,000 16.000	2,200 500

NTU - Nephelometric Turbidity Units

A.P.C.U. - Apperent Platnum Color Units

mg CeCO3/L - milligrams of celcium carbonate per liter

MPN/100 ml - Most Probable Number per 100 millitiers; col/100 ml - colonies per 100 millitiers

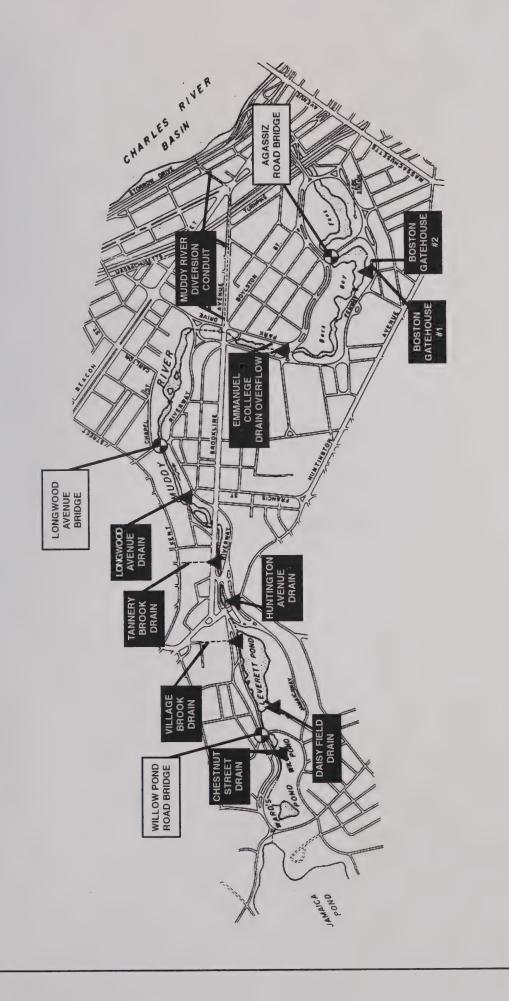
>1,600 - greater than the maximum amount of colonies countable via the MPN Method; <20 - less than 20 colonies counted

ND - not detected above Method Detection Limit









Muddy River- Water Quality Sampling Locations



City of Boston/Town of Brookline, Massachusetts and Recreation **Boston Parks**

Muddy River Phase 1 Improvements & Habitat Enhancement Project

Figure









July 11, 2000

Steven G. Lipman, P.E. Department of Environmental Protection One Winter Street Boston, MA 02108

re: Muddy River Restoration Project, Water Quality Sampling Plan

Dear Mr. Lipman:

The following is provided in response to your comment letter on the Muddy River Water Quality Sampling Plan. The attached water quality summary was prepared in order to clarify the extent of the most recent water quality data base and to more informatively respond to your comments. The data consists of information from the Charles River Watershed Association for October 27,1998 and the USGS data from the Nederlands Road gaging station for the period of June 1999 through May 2000. Because the City of Boston and Town of Brookline have made substantial improvements in eliminating illegal connections, making corrections at inter-municipal connections, and sewer separation work, the older EPA and DEP data are no longer representative of water quality.

Therefore, not only is the existing data base limited in time, it is also limited in the geographic extent of the Muddy River which it covers. Hence, the reason for obtaining "up-to-date and synoptic water quality data along the Muddy River. The CRWA and USGS data show a limited number of instances where bacteria exceed the water quality standard. The data clearly show elevated nutrient conditions but limited solids concentrations.

The proposed sampling locations and time intervals are more extensive than the one-time sampling by the CRWA or the one sampling location by the USGS. The proposed sampling plan includes 11 sampling locations for three periods including wet and dry. The sampling will be conducted during July, August, and October.

Mr. Steven G. Lipman

Page 2

July 11, 2000

The data will be used for several purposes. First, it will be used to describe the existing water quality conditions from the Charles River to Willow Pond. Second, through the water quality data and hydrologic modeling it will be able to establish the degree of contamination from the drainage sources. This cannot be accomplished with the existing data. In terms of project planning, the water quality data will be used to determine where BMPs should be prioritized and for which water quality constituents e.g. solids, bacteria, nutrients. The information will also allow an assessment to be conducted of the effectiveness of the proposed dredging and BMPs in improving water quality. The data will also be used to assess the impact of other water quality improvement alternatives being considered as part of the project..

We hope that this provides you with the information you need as we are anxious to commence the monitoring

If you have any questions or need further information, please do not hesitate to contact me 781, 890-3737 x128.

Sincerely,

JASON M. CORTELL and ASSOCIATES INC.

Carlton L. Noyes

Deputy Project Manager

cc:

Frances G. Beatty - BPRD John F. Burckhardt – BPRD Bruce R. Conklin - CDM

CHARLES RIVER WATERSHED ASSOCIATION

Water Quality Sampling Stations October 27, 1998

MUD 1	Inlet to Wards Pond from Jamaica Pond
MUD 2	Outlet from Willow Pond
MUD 3	Leverett Pond at Village Brook Drain
MUD 4	Outlet from Leverett Pond
MUD 5	Muddy River at Brookline Avenue
MUD 6	Muddy River at Longwood Avenue
MUD 7	Muddy River at Back Bay Yard
MUD 8	Muddy River at Avenue Louis Pasteur
MUD 9	Muddy River at Footbridge
MUD 10	Muddy River at Boston Gatehouse
MUD 11	Muddy River at Agassiz Road
MUD 12	Muddy River at Commonwealth Avenue

		Charles Riv	le le	Watershed Assoc	ciation Muddy	River Data	River Data Report - October 27		1998				
	Units	MUD1	MUD2	MUD3	MUD4	MUDS	MUD6	MUD7	MUD8	MUD9	MUD10	MUD11	MUD12
ecal Coliform	CFU/100 ml	110	30	<10	100	2,600	<10	<10	210	280	4,800	800	1,100
Vitrite as N	ma/l	<0.10	<0.10	0.26	0.27	0.28	0.25	0.26	0.27	<0.10	0.34	<0.10	<0.10
Vitrate as N	l/bm	0.1	0.74	0.71	0.69	0.78	0.61	9.0	0.65	0.77	1.6	1.3	1.4
Chloride	l/bm	87	100	55	64	94	75	73	79	85	140	130	140
Total Phosphorus	ma/l	<0.05	<0.05	0.25	0.27	0.13	0.1	0.11	0.08	<0.05	<0.05	90.0	<0.05
Orthophosphate as P.	ma/l	<0.10	<0.10	0.12	0.11	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
55	ma/l	<4.0	<4.0	56	75	4.6	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0	5.4
Specific Conductance (lab)	uS/cm	350	480	320	350	440	380	370	380	400	610	929	610
Salinity	ppt	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.3	0.3	0.3
BOD	l/bm	<2.0	<2.0	<2.0	4.3	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0

Samples collected on October 27, 1998 at locations shown on the attached figure. Samples collected during dry weather flow. Notes:

TSS - total suspended solids BOD - biochemical oxygen demand

CFU/100 ml - coliforms per 100 milliliters mg/l - milligrams per liter (ppm - parts per million) ppt - parts per thousand uS/cm - microSiemens per centimeter

	ס	उ ढ े अखाट	USGS Station # 01104663 Muddy River @ Nederlands Road - Brookline, Massachusetts	oo Minday L	VIVEI (C) NEC	nerialius Ro	ad - DIOURI	lie, Massac	liusells				
Date Collected	Units	6/24/99	7/19/99	7/27/99	8/26/99	9/27/99	10/26/99	11/19/99	12/29/99	1/24/00	2/24/00	3/24/00	2/1/00
-ecal Coliform	CFU/100 ml	20	<10	NA V	<10	A A	20	<10	<10	AA	NA	AN	250
Enterococcus	CFU/100 ml	10	<10	NA	<10	NA NA	<10	20	<10	NA NA	A A	NA	160
Vitrite: Nitrate	mg/l	AN	0.3	NA	0.27	0.5	0.72	0.53	1.1	-	1.3	1.5	N A
otal Ammonia	mg/l	NA	0.5	NA	¥	0.62	0.46	0.558	0.53	0.64	0.44	0.28	0.256
Fotal TKN	mg/l	NA	1.2	NA	¥		Ţ.	1.1	0.91	1.3	1.1	1.4	1.1
Fotal Phosphorus	l/gm	AN	0.12	Z Z	0.12	0.11	0.1	0.12	0.1	0.16	0.14	0.1	AN
Total Cadmium	l/bn	<0.05	<0.05	A A	A A	NA	0.2	0.2	0.2	0.2	0.2	0.5	¥ V
Fotal Chromium	l/gu	96.0	0.73	Y Y	¥	NA A	2	2	2	2	2	2	A A
Fotal Copper	l/gu	4.7	5.6	AN	A A	NA NA	7	9	9	5	6	6.2	A A
Fotal Lead	l/gn	2.6	4.7	N N	¥.	NA	6.3	3.9	3.3	3.6	4.8	3.4	NA
otal Zinc	l/gn	<10	11.9	¥.	A A	N N	14.9	9.7	14.2	19.6	30.2	15.1	AN
Turbidity (field)	NTC	AN	22	7	S.	5	NA	¥	¥ X	Y Y	AN	NA	A A
Turbidity (lab)	UTN	AN	¥.	A A	NA NA	N A	5.33	¥	2.62	12.6	AN	NA	NA
rss	l/gm	10.7	4.8	¥ Y	4.8	7.8	7.2	ည	3.2	5.2	5.8	NA	NA
DS	l/gm	547	196	¥.	176	224	218	204	324	525	6,269	NA	NA
Specific Conductance (field)	mS/cm	AN	NA NA	316	¥.	352	NA	NA	NA	NA	AN	N A	AN
Specific Conductance (lab)	mS/cm	AN	358	311	270	N A	401	A A	74.9	860	NA	NA	NA
Salinity	ppt	AN	¥.	¥	NA NA	N N	NA	NA	NA NA	NA	AN	NA	AN
BOD	l/gm	A A	2.2	A A	N N	<2	2	2	2	4.6	2	2	2
DO	l/gm	AN	5.9	3.7	5.9	6.9	ΑN	AN	A A	Υ V	ΑX	Y V	N A
Ho	standard units	AN	7.3	99	7	99	ΑN	Ϋ́Z	ΑΝ	ΑN	ΑN	AN	Ϋ́

Notes:

Data PROVISIONAL. All samples collected during dry weather flow.

TKN - total kjeldehl nitrogen TSS - total suspended solids TDS - total dissolved solids

BOD - biochemical oxygen demand

DO - dissolved oxygen

CFU/100 ml - coliforms per 100 milliliters mg/l - milligrams per liter (ppm - parts per million) ug/l - micrograms per liter (ppb - parts per billion) ppt - parts per thousand NTU - Nephelometric turbidity units

uS/cm - microSiemens per centimeter NA - not analyzed



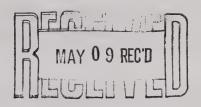


ARGEO PAUL CELLUCCI Governor

JANE SWIFT Lieutenant Governor

COMMONWEALTH OF MASSACHUSETTS EXECUTIVE OFFICE OF ENVIRONMENTAL AFFAIRS DEPARTMENT OF ENVIRONMENTAL PROTECTION

ONE WINTER STREET, BOSTON, MA 02108 617-292-5500



BOB DURAND Secretary LAUREN A. LISS Commissioner

May 3, 2000

Bruce Conklin Camp, Dresser & McKee, Inc. One Cambridge Place 50 Hampshire Street Cambridge, MA 02139

Re: Muddy River Restoration Project, Water Quality Sampling

Dear Mr. Conklin:

In response to an April 25, 2000 request to the Department of Environmental Protection (DEP) for expedited review and comment of the Draft 4-17-00 Muddy River Phase I, Flood Control, Water Quality and Habitat Enhancement Project, Water Quality Sampling Plan, this writer has performed an initial review of this document and submits the following comments.

Comments

The Objective and Reporting Sections of the Draft are indicated below.

Objective

"The objective of this Water Quality Sampling Plan is to obtain up-to-date and synoptic water quality data along the Muddy River for use in the development of construction mitigation measures and for project permitting. This will allow the existing data base to be expanded and to include water quality parameters for which analyses have not been conducted in the past."

Reporting

"These results will be tabulated and the mean and range in concentration will be included. The data base will be compared against applicable water quality standards and will also be used in preparation of construction mitigation measures and environmental permitting. The Muddy

This information is available in alternate format by calling our ADA Coordinator at (617) 574-6872.

River data base which will include all data sources, will also be used to assess the feasibility of various Best Management Practices to enhance future water quality conditions." (emphasis added)

Even after reading these sections of the Plan it is still unclear, at least to this writer, exactly how the data from this very limited sampling program will be incorporated into project planning. Please provide more detailed information.

In addition, I suggest that the "existing water quality data gathering activity" be performed as soon as possible and that fully reviewed (e.g. QC) and assessed, and the scope of work for the additional sampling be determined based on filling-in necessary data gaps to allow for attaining the specific objectives and goals of the study.

I have distributed the Draft Plan to other DEP staff for review and comment and I will provide any further comments directly to you.

Very truly yours,

Steven G. Lipman, P.E. Special Projects Coordinator

SGL/wp Conklin

CC: Carl Noyes, Cortell and Assoc. Rachel Freed, DEP/WW

MUDDY RIVER PHASE I FLOOD CONTROL, WATER QUALITY AND HABITAT ENHANCEMENT PROJECT

WATER QUALITY SAMPLING PLAN

Objective

The objective of this Water Quality Sampling Plan is to obtain up-to-date and synoptic water quality data along the Muddy River for use in the development of construction mitigation measures and for project permitting. This will allow the existing data base to be expanded and to include water quality parameters for which analyses have not been conducted in the past.

Methodology

The Project proposes to collect water samples from three representative locations during one wet and two dry weather events. The water sampling will be conducted once each month in April/May, August, and October.

Instantaneous grab samples will be collected from each of the River sections between roadway crossings and from eight of the major outfalls. The proposed sampling locations are:

- Muddy River at Agassiz Road Bridge
- Muddy River at the Longwood Avenue Bridge
- Muddy River at the Willow Road Bridge
- Outfalls
 - 1. Boston Gate House
 - 2. Emmanuel College Drain
 - 3. Longwood Avenue Drain
 - 4. Tannery Brook Drain
 - 5. Huntington Avenue Drain
 - 6. Village Brook Drain
 - 7. Daisy Field Drain
 - 8. Chestnut Street Drain

The sampling locations are shown on Figure 1.

and Interococci Water quality analyses will be conducted for:

- Fecal Coliform Bacteria
- Total Suspended Solids
- pH (field)
- Alkalinity
- Temperature (field)
- Dissolved Oxygen (field)
- Total Phosphorus
- Ortho Phosphorus
- Ammonia Nitrogen
- Nitrate-nitrite Nitrogen

The following QA/QC procedures shall be conducted during sample collection and analysis:

- Field and Laboratory Chain of Custody
- DEP Certified Analytical Laboratory
- EPA/DEP approved analytical procedures
- Trip Blanks One trip blank for each day of sample collection
- Laboratory Blanks for each day of sample collection.
- Matrix Spikes for each day of sample collection
- Matrix Spike Duplicates for each day of sample collection.

In addition, the existing water quality data base will be assembled from the following data sources:

- U.S. Environmental Protection Agency
- U.S. Army Corps of Engineers
- U.S. Geological Survey
- Department of Environmental Protection
- City of Boston
- Town of Brookline
- Northeastern University
- Restore Olmsted's Waterway
- Muddy River Coalition
- Emerald Necklace Conservancy

Reporting

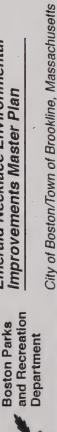
These results will be tabulated and the mean and range in concentration will be included. The data base will be compared against applicable water quality standards and will also be used in preparation of construction mitigation measures and environmental permitting. The Muddy River data base which will include all data sources, will also be used to assess the feasibility of various Best Management Practices to enhance future water quality conditions.



Muddy River- Water Quality Sampling Plan



and Recreation **Boston Parks** Department







MUDDY RIVER PHASE I FLOOD CONTROL, WATER QUALITY AND HABITAT ENHANCEMENT PROJECT

WATER QUALITY SAMPLING PLAN

Objective

The objective of this Water Quality Sampling Plan is to obtain up-to-date and synoptic water quality data along the Muddy River for use in the development of construction mitigation measures and for project permitting. This will allow the existing data base to be expanded and to include water quality parameters for which analyses have not been conducted in the past.

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 - 4. Tannery Brook Drain
 - 5. Huntington Avenue Drain
 - 6. Village Brook Drain
 - 7. Daisv Field Drain
 - 8. Chestnut Street Drain

The sampling locations are shown on Figure 1.

Water quality analyses will be conducted for:

- Fecal Coliform Bacteria
- Fecal Streptococcus Bacteria
- Total Suspended Solids
- True and Apparent Color
- Turbidity
- pH (field)
- Alkalinity
- Acidity
- Temperature (field)
- Dissolved Oxygen (field)
- Total Phosphorus
- Ortho Phosphorus
- Ammonia Nitrogen
- Nitrate-nitrite Nitrogen

Water samples shall also be collected from the following locations and analyzed for total lead. These samples shall be collected during the dry weather sampling event.

Willow Pond Outlet Muddy River at the trash rack at the Riverway Ipswich Street.

The following QA/QC procedures shall be conducted during sample collection and analysis:

- Field and Laboratory Chain of Custody
- DEP Certified Analytical Laboratory
- EPA/DEP approved analytical procedures
- Trip Blanks One trip blank for each day of sample collection
- Laboratory Blanks for each day of sample collection.
- Matrix Spikes for each day of sample collection
- Matrix Spike Duplicates for each day of sample collection.

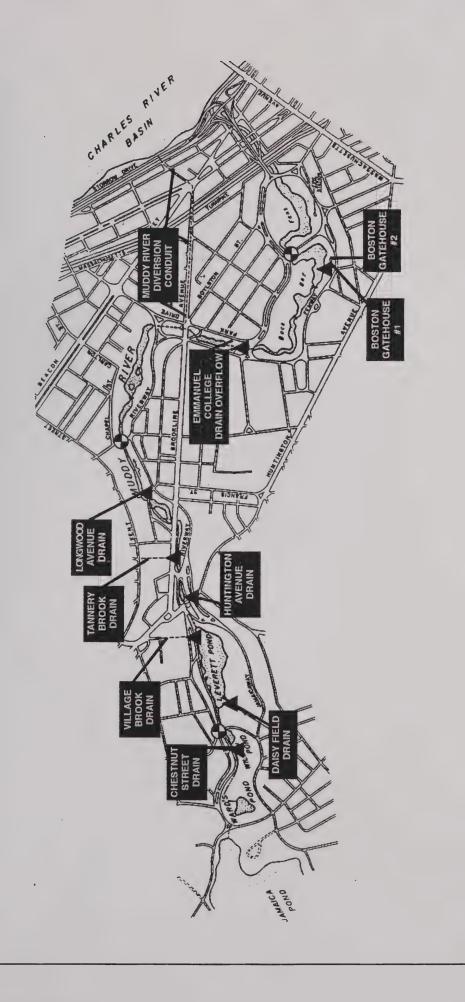
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- U.S. Environmental Protection Agency
- U.S. Army Corps of Engineers
- U.S. Geological Survey
- Department of Environmental Protection
- City of Boston
- Town of Brookline
- Northeastern University
- Restore Olmsted's Waterway
- Muddy River Coalition
- Emerald Necklace Conservancy

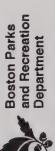
Reporting

These results will be tabulated and the mean and range in concentration will be included. The data base will be compared against applicable water quality standards and will also be used in preparation of construction mitigation measures and environmental permitting. The Muddy River data base which will include all data sources, will also be used to assess the feasibility of various Best Management Practices to enhance future water quality conditions.





Muddy River- Water Quality Sampling Plan



Muddy River Phase 1 Improvements & Habitat Enhancement Project

City of Boston/Town of Brookline, Massachusetts



Figure 2







ALPHA ANALYTICAL LABORATORIES

Eight Walkup Drive Westborough, Magaachueetts 01581-1019 (508) 898-9220 MA:M-MA-086 NE:200395-B/C CT:PE-0574 ME:MA086 RI:65 NY:11148

CERTIFICATE OF ANALYBIS

Cilent: Camp Dresser & Makee, Inc.

Address: 1 Cambridge Place
50 Rampshire Street
Cambridge, MA 02139

Attn: Bruce Conklin

Project Number: 20300.001.004

Site: MUDDY RIVER

Alpha Sample number	CLIENT IDENTIFICATION	SAMPLE	SAMPLE LOCATION
LOGILSB9-01	AGASSIZ ROAD BRIDGE	BOSTON	BOSTON / BROOKLINE
L0011589-02	BOSTON GATE HOUSE	NOTSOE	BOSTON / BROOKLINE
L0011589-03	EMMANUEL COLLEGE DRAIN	BOSTON	BOSTON / BROOKLINE
L0011589-04	LONGWOOD AVENUE DRAIN	NOTSOE	BOSTON / BROOKLINE
L0011589-05	LONGWOOD AVENUE BRIDGE	BOSTON	BOSTON / BROOKLINE
L0011589-06	TANNERY BROOK DRAIN	BOSTON	BOSTON / BROOKLINE
L0011589-07	HUNTINGTON AVENUE DRAIN	BOSTON	BOSTON / BROOKLINE
L0011589-08	DAISY FIELD DRAIN	NOLSOS	BOSTON / BROOKLINE
L0011589-09	CHESNOT STREET DRAIN	HOSTON /	BOSTON / BROOKLINE
L0011589-10	WILLOW POND ROAD BRIDGE	BOSTON	BOSTON / BROOKLINE
L0011589-11	VILLAGE BROOK DRAIN	BOSTON /	BOSTON / BROOKLINE

I attest under the pains and penalties of perjury that, based upon my inquiry of those individuals immediately responsible for obtaining the information, the material contained in this report is, to the best of my knowledge and belief, accurate and complete. This certificate of analysis is not complete unless this page accompanies any and all pages of this report.

Authorized by: Scott McLean

Scott McLean - Laboratory Director This document electronically signed

12210004:05 Pagm 1 of 16

NO. 815

Р. Ш

DEC.27.2000 11:23AM CAMP DRESSER & MCKEE

ALPHA ANALYTICAL LABORATORIES CERTIFICATE OF ANALYSIS

Ma:M-Ma-086 NH:200395-B/C CT:PH-0574 ME:MA086 RI:65

Laboratory Sample Number: Jool1589-01 AGMSIZ ROM Sample Matrix:	LOO11589-01 AGASSIZ ROAD BRIDGE WATER	Date Collected: 14-DEC-2000 12:00 Date Received: 14-DEC-2000 Date Reported: 21-DEC-2000	C-2000 12:00 C-2000
Condition of Sample:	Batisfactory	Field Prep: None	
Number & Type of Containers: 2-Batteria, 3-Plastic	rs: 2-Badteria, 3-Plastic		

Turbidity Color, True 13. A.P.C.U. 5.0 10 21208 1214 19:30 MC Color, True Color, Apparent 22, A.P.C.U. 5.0 30 21208 1214 19:30 MC Color, Apparent 22, A.P.C.U. 5.0 30 21208 1214 19:30 MC Acidity Parameter	RESULT	UNITE	RDE	REF METHOD	DATE ID PREP ANAL	
13. A.P.C.U. S.O 30 21208 22. A.P.C.U. S.O 30 21208 40. mg CaCO3/L2.O 30 23208 6.6 mg/l 5.O 30 2540D 0.344 mg/l 0.10 30 4500803-m 0.50 mg/l 0.01 30 4500803-m 0.05 mg/l 0.01 30 45008-8	Turbidity	6.0	ULL	0.20	B0 27308	1214 19:30 AC
22, A.P.C.U. S.O 30 3120B 40. mg CaCO3/L2.O 30 3310B 6.6 mg/l 5.0 30 2540D. 0.344 mg/l 0.075 30 4500803-m 0.50 mg/l 0.01 30 4500803-m 0.06 mg/l 0.01 30 45008-m -20 MPW/LOOM1 20 30 93232	Color, True	13.	A.P.C.U.	5.0	30 212 08	1214 19:35 AC
ND mg CaCO3/L2.0 30 2310B 40. mg CaCO3/L2.0 30 2320B 6.6 mg/l 5.0 30 2320B 0.344 mg/l 0.10 30 4800803-m 0.50 mg/l 0.10 30 450080-m 0.05 mg/l 0.01 30 45008-m 0.01 mg/l 0.01 30 45008-m <20	Color, Apparent	22,	A. P. C. U.	0.0	30 21208	1214 19:20 AC
40. mg CacCo3/L2.0 30 2320B 6.6 mg/l 5.0 30 2540D 0.344 mg/l 0.075 30 4500803-mk 0.05 mg/l 0.10 30 4500803-F 0.06 mg/l 0.01 30 45008-B	Acidity	Đ.	mg Caco3/	L2.0	30 23108	1219 16:00 MR
6.6 mg/l 5.0 30.2540D. 0.344 mg/l 0.075 30.4500003-24 0.05 mg/l 0.01 30.45000-8 0.01 mg/l 0.01 30.45000-8 <20 MPN/100ml 20 30.92328 40. MPN/100ml 20. 30.92328	Alkalinity, Total	40.	тд Сасоз/	7.22.0	30 23208	1220 10:20 MA
0.50 mg/l 0.10 30 45000033-204 0.06 mg/l 0.10 30 4500003-2* 0.01 mg/l 0.01 30 45002-8 -20 MPN/100ml 20 30 92232	Solids, Total Suspended	به ن	mg/l	0,10	30 2540D.	. 1220 16:30 DT
0.06 mg/l 0.10 30 4500803-P 0.06 mg/l 0.01 30 45008-8 0.01 mg/l 0.01 30 45008-8 <20 MPN/l00ml 20 30 92218 40. MPN/l00ml 20. 30 92208	Nitrogen, Ammonia	0.344	mg/1	0.075	RE-EHMONS 9E	1219 10:53 ED
0.06 mg/l 0.01 30 4500P-B 0.01 mg/l 0.01 30 4500P-B <20 MPN/100ml 20 30 9231B 40. MPN/100ml 20. 30 9230B	Nitrogen, Mitrate/Nitrite	0.50	т9/1	0.10	30 4500MO3-F	1215 20:10 DB
0.01 mg/l 0.01 30 4500P-8 <20 MPN/l00ml 20 30 92318 40. MPN/l00ml 20. 30 9230B	Phosphorus, Total	0.06	mg/1	0.01	30 4500P-8	TO DOIST OZZI
<pre><20 MPN/100ml 20 30 9231B 40. MPN/100ml 20. 30 9230B</pre>	Phosphorus, Orthophosphate	0.01	mg/1	0.01	30 4500Pe	1214 21:10 OT
40. MFM/100ml 20. 30 \$2308	Coliform, Fecal (MFN)	<20	MPN/100ml	20	. 開 門 で で で の の	3214 38:00 AB
	doliform, Fedal Strep (MPN)	40.	MPN/100m1	20.	30 9230B	1214 19:30 AB

Comments: Complets list of References and Glossery of Terms found in Addendum I

12210004:05 Page:2 of 16

NO.815 P.4

DEC. 27. 2000 11:23AM CAMP DRESSER & MCKEE

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12210004:08

DEC.27.2000 11:249M CAMP DRESSER & MCKEE

ALPHA ANALYTICAL LABORATORIES CERTIFICATE OF ANALYBIS

MA:M-MA-086 NH:200395-B/C CT:FH-0574 ME:MA086 RI:65

A ANTAL DATE REF METHOD RDZ DNITE RESULT PARAMETER

Turbidity	F. 0	NTO	0.20	goeta de	1214 19:30 AC
Color, True	Q.	A.P.C.U.	0.0	30 21208	1214 19:35 AC
Color, Apparent	6 1	P.D.C.4	o,	30 2120B	1214 19:20 AC
Acidity	ě	mg CaCO3/12.0		30 23108	1219 14:00 MA
Alkalinity, Total	40.	mg CaCO3/L2.0		30 2320B	1220 10:20 MA
Solids, Total Suppended	CN.	mg/1	S. O	30 25405	122C 16:30 DT
Nitrogen, Ammonia	0.254	mg/1 (0.075	30 4500NH3-BH	1219 10:54 ED
Nitrogen, Nitrate/Nitrite	0.47	mg/1 (0.10	30 4500NO3-F	1215 20:11 DB
Phosphorus, Total	0.07	mg/1 (0.01	30 45005-3	1220 18:00 UT
Phosphorus, Orthophosphate	0.03	mg/1 (0.01	30 4500P-K	izia zi:10 JT
Coliform, Fecal (MPN)	V50	MPN/100ml 20		30 9221H	1214 18:00 AB
Coliform, Pecal Strep (MPN)	<20	MPN/100ml 20		30 92308	1214 19:30 AB

Comments: Complete list of References and Glossary of Terms found in Addendum I

ALPHA ANALYTICAL LABORATORIES CERTIFICATE OF ANALYSIS

MA:M-MA-086 NH:200395-B/C CT:PH-0574 NE:MA086 RI:65

LOO11589-03 Date Collected: 14-DEC-2000 12:40 Date Received: 14-DEC-2000 NATER NATER	Satisfactory Field Prep: None
Laboratory Sample Number: 10011589-03 EmydaNUEL CO Gample Matrix: WATER	Condition of Sample:

PARAMETER	RESULT	UNITE	RDL	REF METHOD	DATE ID
Turbidity	27.	NTO	0.20	30 21308	1214 19:30 MG
Color. Trus	7.0	E 0	C	5 c c c c c c c c c c c c c c c c c c c	
)		1214 19138 AC
Color, Apparent	: ::::::::::::::::::::::::::::::::::::	A.P.C.U.	0.0	30 21208	1214 19:20 AC
Acidity	Ę	0 6.17.500 0.20	0	6 2 2 0 0	9
	ì	The state of the s			1229 14100 MA
Alkalinity, Total	, ci	mg CaCO3/L2.0	12.0	30 23208	1220 10:20 NA
Solids, Total Suspended	19.	mg/1	5.0	30 2540D	1220 16:30 DE
Nitrogen, Ammonia	0.481	mq/1	0.075	30 45000007.W	EB 22000
		ì			
Nitrogen, Nitrate/Nitrite	0.43	тд/1	0.10	30 4500903-F	1215 20:17 DR
Phosphorus, Total	0.12	mg/1	0.01	30 4800P-W	1220 18,00 31
			1		
Phosphorus, Orthophosphate	0.03	mg/l	0.01	30 45009~H	1214 21,10 JT
Coliform, Fecal (MPN)	2200	MPN/100ml 20.	20.	NO STATE	1214 18:00 AB
Coliform, Fecal Strep (MPN)	200	MFN/100ml 20.	20.	30 92308	1214 19:30 AM

Comments: Complete list of References and Glossary of Terms found in Addendum I Page 4 of 16

12210004:05

70 .UI

MA:M-MA-086 NH:200395-B/C CT:PH-0574 ME:MA086 RI:65

Leboratory Sample Number: LOOLISB9-04 LONGMOOD AVE Sample Matrix: WATER	: LOOII589-04 LONGWOOD AVENUE DRAIN WATER	Date Collected: 14-DEC-2000 Date Received : 14-DEC-2000 Date Reported : 21-DEC-2000	Date Collected: 14-DEC-2000 13:00 Date Received : 14-DEC-2000 Date Reported : 21-DEC-2000
Condition of Sample:	Satiafactory	Field Prep:	None
Number & Type of Contains	Number & Type of Containers: 2-Bacteria, 3-Plastic		

PARAMETER	RESULT	UNITE	RDL	REF METHOD	DATE ID
Turbidity	42.	NTO	0.20	30 21308	1214 19:30 AC
Color, True	12.	A.P.C,U. §	υ, Ο	30 SLC 06	1214 19:35 AC
Colot, Apparent	42 EB	A.P.C.U.	5.0	30 2120B	1214 19:20 AC
Acidity	Q.	mg CaCO3/L2.0	0.	30 23108	1219 14:00 MA
Alkalinity, Total	ω 	mg caco3/L2.0	0	30 23208	1220 10:20 MA
Solids, Total Suspended	 10	mg/1 1	10.	30 2540D	1220 16:30 DY
Nitrogen, Ammonia	0.549	mg/1	0.075	30 4500MB3-BB	1219 11:08 ED
Nitrogen, Nitrate/Nitrite	0.32	T/Em	0.10	30 4600MO3-F	1215 20:17 DE
Phosphorus, Total	61.0	mg/1	0.01	H-00064 05	1220 18,00 UT
Phosphorus, Orthophosphate	0.07	1/5m	0.01	30 4500P-E	1216 21:10 JT
Coliform, Fecal (MPN)	2000	MFN/100ml 20.	.03	30 9221E	1214 15:00 AB
Coliform, Pecal Strep (MPN)	30000	MPN/100m1 200	002	10 5230B	1214 19,30 AB

Comments: Complete list of References and Glossary of Terms found in Addendum I

NO.815 P.7

12210004:05 Fage 5 of 16

DEC.27.2000 11:25AM CAMP DRESSER & MCKEE

ALPHA ANALYTICAL LABORATORIES CERTIFICATE OF ANALYSIS

MA:M-MA-086 NH:200395-B/C CT:PH-0574 NE:MA086 RI:65

Date Reported : 21-DEC-2000	Laboratory Sample Number:	LOOLIS89-05 LONGWOOD AVENUE BRIDGE	UR BRIDGE	U U	Data Collected: Date Received :	14-DEC-2000 13:10 14-DEC-2000
1 2-Bacteria, 3-Plastic Rield Prep: None PARE None	Sample Matrix:	WATER		Da		21-DEC-2000
FESULT UNLTS RDL REF METHOD PATE ANAL. 54. NTU 0.20 30 2130B 1314 19130 17. A.P.C.U. 5.0 30 2130B 1214 19130 2.0 mg CaCO3/L2.0 30 2310B 1214 19130 17. mg/l 10. 30 2310B 1210 1310 1310 1310 0.659 mg/l 10. 30 2340B 1210 1310 1310 1310 0.659 mg/l 0.10 30 4500P-B 1212 1310 1310 1310 0.059 mg/l 0.01 30 4500P-B 1220 1310 1310 1310 0.03 mg/l 0.01 30 4500P-B 1224 21110 15000 MPN/L00ml 20. 30 92318 1214 18100 330000 MPN/L00ml 200 30 92308 1214 18130	Condition of Sample:	Satisfactory		Pi Bi		eno
54. NULTS RDL REF METHOD DATE 17. A.P.C.U. 5.0 30 2130B 1314 1913D 48. A.P.C.U. 5.0 30 2130B 1214 1913D 48. A.P.C.U. 5.0 30 2120B 1214 1913D 2.0 IMG CRCO3/LZ.O 30 2340B 1219 1612D 17. IMG CRCO3/LZ.O 30 2340B 1229 1612D 62. IMG/L 10. 30 2540B 1220 1612D 62. IMG/L 0.075 30 4500MH3-BR 1219 1615G 62. IMG/L 0.010 30 4500P-B 1220 1810D 62. IMG/L 0.01 30 4500P-B 1224 2810D 62. IMG/L 0.01 30 9231E	Number & Type of Container	s: 2-Bacteria	, 3-Plastic			
54. NTU 0.20 30 2130B 17. A.P.C.U. 5.0 30 3120B 2.0 mg CaCO3/L2.0 30 310B 17. mg CaCO3/L2.0 30 2310B 62. mg/l 10. 30 2310B 0.559 mg/l 0.075 30 4500M7-BE 0.39 mg/l 0.01 30 4500M0-F 0.03 mg/l 0.01 30 4500P-B 16000 MPN/L00ml 20. 30 9331E 30000 MPN/L00ml 20. 30 9331E	Parameter		CNIES	RDL	REF METHOD	15
17. A.P.C.U. 5.0 30 31208 48. A.P.C.U. 5.0 30 31208 2.0 mg CaCO3/L2.0 30 23108 17. mg CaCO3/L2.0 30 23108 62. mg/l 10. 30 2540B 0.559 mg/l 0.075 30 4500873-88 0.39 mg/l 0.10 30 45008-8 0.03 mg/l 0.01 30 45008-8 15000 MPN/L00ml 20. 30 92318	Turbidity	W)	DIL	9	30 21303	1214 19120 AC
48. A.P.C.U. S.O 30 3120B 2.0 mg CaCO3/L2.0 10 2310B 17. mg CaCO3/L2.0 30 2320B 62. mg/l 10. 30 3540B 0.659 mg/l 0.075 30 4500M3-BE 0.39 mg/l 0.10 30 4500P-E 0.03 mg/l 0.01 30 4500P-E 16000 MPN/L00ml 20. 30 9231E 30000 MPN/L00ml 20. 30 9231E	Color, True	17.	A.P.C.U.	n, 0	30 21208	1214 19:38 AC
2.0 mg CaCO3/L2.0 30 23102 17. mg CaCO3/L2.0 30 23202 62. mg/l 10.075 30 4500M73-BE 0.39 mg/l 0.10 30 4500M73-BE 0.17 mg/l 0.01 30 45008-E 0.03 mg/l 0.01 30 45008-E 15000 MPN/L00ml 20. 30 9231E	Color, Apparent	4, 80	A.P.C.U.	80 CO	30 21208	1214 18:20 AC
17. mg CaCC3/L2.0 30 23238 62. mg/l 10. 30 2540D 0.659 mg/l 0.075 30 4500M3-BE 0.39 mg/l 0.10 30 4500M3-P 0.17 mg/l 0.01 30 4500P-B 16000 MPN/L00ml 20. 30 9231E 30000 MPN/L00ml 20. 30 9231E	Acidity	0,0	mg CaCO3/	L2.0	30 23109	1219 14:00 MA
62. mg/l 10. 30 3540D 0.659 mg/l 0.075 30 4500M37-BE 0.39 mg/l 0.10 30 4500M3-P 0.17 mg/l 0.01 30 4500P-E 0.03 mg/l 0.01 30 4500P-B 16000 MPN/l00ml 20. 30 9231E 30000 MPN/l00ml 20. 30 9231E	Alkalinity, Total	17.	mg CaCO3/	L2.0	30 23308	1230 18:20 MA
0.659 mg/l 0.075 30 4500M37-BER 0.39 mg/l 0.10 30 4500M03-F 0.17 mg/l 0.01 30 4500F-E 0.03 mg/l 0.01 30 4500F-B 15000 MFN/l00ml 20. 30 9231E		62,	т9/1	10.	30 25400	1220 18:30 DT
0.39 mg/l 0.10 30 4500M03-F 0.17 mg/l 0.01 30 4500F-E 0.03 mg/l 0.01 30 4500F-B 15000 MFN/100ml 20. 30 9221E 30000 MFN/100ml 200 30 9230E	Nitrogen, Ammonia	0.659	mg/1	0.075	30 4500MH3-BH	1219 10:56 ED
0.03 mg/l 0.01 30 4500P-E 0.03 mg/l 0.01 30 4500P-B 15000 MFN/l00ml 20. 30 9231E 30000 MFN/l00ml 200 30 9230E	Nitrogen, Nitrate/Nitrite	96.0	mg/1	0.10	30 4500NO3-F	3236 20:28 DE
0.03 mg/l 0.01 30 4500P-B 16000 MPN/100ml 20. 30 9221E 30000 MPN/100ml 200 30 92398		0.17	mg/1	0.01	30 48009-8	1920 18:00 UT
16000 MPN/100ml 20. 30 92218 30000 MPN/100ml 200 30 92308		0.03	mg/1	10.0	30 4500P-B	1214 21:10 JT
30000 MEN/100ml 200 30 92308	Fecal	1,6000	MPN/100ml	20.	30 92218	1314 18:00 AM
	Coliform, Fecal Strep (MPN		MPN/100ml	200	BORZE DE	1214 19:30 AB

Comments: Complete list of References and Glossary of Terms found in Addendum I 13210004:08 Page 6 of 16

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12210004:05

ALPHA ANALYTICAL LABORATORIES CERTIFICATE OF ANALYSIS

MA:M-MA-086 NH:200395-B/C CT:PH-0574 ME:MA086 RI:65

Laboratory Sample Number: L0011599-06 Sample Matrix: WATER	LOO11589-06 TANNERY BROOK DRAIN WATER	Date Collected: 14-DEC-2000 Date Received : 14-DEC-2000 Date Reported : 21-DEC-2000	Date Collected: 14-DEC-2000 13:18 Date Received : 14-DEC-2000 Date Reported : 21-DEC-2000
Condition of Sample:	Satisfactory	Field Prep:	None
Number & Type of Containers: 2-Bacteria, 3-Plastic	rs: 2-Bacteria, 3-Plastic		

H

ANAL

DATE PREP A

RBF METHOD

RDI

UNITE

RESULT

PARAMETER

Date Collected: 14-DBC-2000 13:35 Date Received: 14-DBC-2000 Date Reported: 21-DBC-2000

Laboratory Sample Number: L00111599-07
HUNTINGTON AVENUE DRAIN
Sample Matrix:

Number & Type of Containers: 2-Bacteria, 3-Plastic

Satisfactory

Condition of Sample:

Field Prepr

MB: MA086 RI:65

NH:200395-B/C CT:PH-0574

MA: M-MA-086

ALPHA ANALYTICAL LABORATORIES CERTIFICATE OF ANALYSIS

1214 19:30 AC

30 2130B

0.20

NTO

бВ.

1214 19:20 AC

30 2120B

A.P.C.U. 10.

90.

Color, Apparent

1214 19:35 AC

30 21203

0.0

A.P.C.U.

6.0

Color, True

Turbidity

1220 10:20 MA

1220 16:30 DT

30 25400

10.

mg/1

210

Solids, Total Suspended

1219 10:38 ED

30 45doNH3-BM

0.075

mg/1

0.551

Nitrogen, Ammonia

1220 18:00 JT

30 4500P-8

0.01

mg/1 mg/1

0.28 0.01

Phosphorus, Total

1214 31:10 JT

30-4500P-8

0.01

Phosphorus, Orthophosphate

1214 18:00 AB

30 9221E

MPN/100ml 20.

3000

Coliform, Fecal (MPN)

RC 61:02 SIZI

T-ECMOUST OF

0.10

mg/1

0.54

Nitrogen, Nitrate/Nitrite

1219 14:00 MR

30 23103 30 23208

mg CaCO3/L2.0

2.0

Acidity

mg CaCO3/L2.0

41.

Alkalinity, Total

PARAMETER	RESULT	UNITS	RDE	REF METHOD	DATE ID PREP ANAL
Turbidity	45.	DIN	0.20	30 2130B	1214 19130 AC
Color, True	17.	A.P.C.U.	0.0	30 2120B	1214 19:35 AC
Color, Apparent	39.	A.P.C.U.	ъ. о	30 21208	1214 19:20 AC
Acidity	Š.	mg CaCO3/12.0	0.0	30 23108	1219 14:00 MA
Alkalinity, Total	18.	mg daco3/L2.0	2.0	30 23208	1220 10:20 MA
Solids, Total Suspended	49.	mg/1	10.	30 25400	1220 16:30 DT
Nitrogen, Ammonia	0.510	mg/1	0.075	HE-CHNOOS5 OC	1219 10:57 80
Nitrogen, Nitrate/Nitrite	0.36	mg/1	0.10	30 4500NO3-F	321 62:02 9121
Phosphorus, Total	0.16	mg/1	0.01	8-40059 Of	1230 18:00 J
Phosphorus, Orthophosphate	0.04	mg/1	0.07	30 45007-15	1214 21:10 JT
Coliform, Fecal (MPN)	16000	MPN/100ml 20.	20.	30 9221E	3214 18100 AB
Coliform, Fecal Strep (MPN)	24000	MPN/100ml 200	200	30 92308	1214 19:30 AB

Comments: Complete list of References and Glossary of Terms found in Addendum I

CAMP DRESSER & MCKEE

NO.815 P.10

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12210004:05

Comments: Complete list of References and Glossary of Terms found in Addendum

1214 19:30 AB

30 92303

MPN/100ml 20.

230

(MEM)

Coliform, Fecal Strep

MA:M-MA-086 NH:200395-B/C CT:PH-0574 ME:MA086 RI:65

Laboratory Sample Number: L0011589-08 Sampla Matrix: WATER Condition of Sample: Satisfactor	LOO11589-08 DALSY FIELD DRAIN WATER Eatlsfactory	Date Collected: 14-DEC-2000 14:00 Date Received: 14-DEC-2000 Date Reported: 21-DEC-2000 Field Prep: None	-DEC-2000 -DEC-2000 -DEC-2000
Number & Type of Containers: 2-Bacteria, 3-Plasti	rs: 2-Bacteria, 3-Flastic		

PARAMETER	RESULT	UNITS	7QX	REF METHOD	PREP	ANAL ID	
Turbidity	67.	סבא	0.20	8000110		1214 19:30 AC	
Color, True	23.	A.P.C.U.	en En	30 21208		1214 19:35 AC	
Color, Apparent	.06	A.P.C.U.	10.	30 2120B		1214 19:20 AG	
Acidity	CN	mg CaCO3/12.0	12.0	30 2310B		1219 14:00 MA	
Alkalinity, Total	11.	mg CaCO3/12.0	12.0	30 2320B		1220 10:20 NA	when department on
Solids, Total Suspended	52.	mg/1	10.	30 2540D		1220 16:30 DT	_
Nitrogen, Ammonia	0 10 10	mg/1	0.075	30 4500MB-BB		1219 20:59 ED	
Nitrogen, Nitrate/Nitrite	0.66	mg/1	0.10	30 4500NO3-F		1215 20:20 DE	
Phosphorus, Total	0.20	mg/1	0,01	30 4500P-E		1220 18:00 JT	
Phosphorus, Orthophosphate	60.0	mg/l	0.01	30 45007-2		1214 21:10 TT	
Coliform, Fecal (MPN)	3000	MPN/100ml 20.	20.	30 92218		1214 18:00 AB	
Coliform, Fecal Strep (MPN)	9000	MPN/100ml 20.	20.	30 92308		1214 19:30 AB	

Comments: Complete list of References and Glossary of Terms found in Addendum I

NO.815 P.11

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12210004:05

DEC.27.2000 11:27AM CAMP DRESSER & MCKEE

ALPHA ANALYTICAL LABORATORIES CERTIFICATE OF ANALYSIS

MA: M-MA-086 NH: 200395-B/C CT: PH-0574 ME: MA086 RI: 65

Sample Natrix:	CHESNUT STREET DRAIN WATER	DRAIN	Date	Received :	: 14~DEC~2000 : 21-DEC~2000
Condition of Sumple:	Satisfactory		구 A	Field Prep: N	None
Number & Type of Containers:	s: 2-Bacteria, 3-Plastic	3-Plastic			
Parameter	RESULT	DMITE	RDL	REF METHOD	DATE ID PREP AMAL
Turbidity	64.	NTU	0.20	80 E12 OE	1214 19:30 AC
Color, True	24.	A.P.C.U.	0.	30 21208	1214 19:35 AC
Color, Apparent	o m	A.D.C.C.	O a an	30 21208	1214 19120 AC
Acidity	CN	mg CaCO3/L2.0	6.5	30 23108	1219 14:00 MA
Alkalinity, Total	13.	mg caco3/12.0	0.0	30 23208	1220 10120 MA
Solids, Total Suspended	170	mg/1	o.	30 2540D	1220 16:30 DT
Nitrogen, Ammonia	0.407	mg/l	0.075	30 4500M3-BH	02 40:11 4:21
Nitrogen, Nitrate/Nitrite	0.38	mg/1	0.10	30 4500MO3-F	121S 20:21 DE
Phosphorus, Total	. o n	mg/1	0.01	30 4500%-B	. 1220 18:00 T
Phosphorus, Orthophosphate	0.05	mg/l	0.01	30 4590%-18	2214 21:10 JT
Coliform, Fecal (MPN)	16000	MPN/100ml	20.	30 \$2218	1214 18:00 AB
Coliform, Fedal Strep (MPN)	16000	MPN/100ml 20	20.	30 92302	1214 19:30 AM

Comments: Complete list of References and Glossary of Terms found in Addendum I Page 10 of 16 12210004:05

NO.815 P.12

DEC. 27. 2000 11:289M CAMP DRESSER & MCKEE

MA:M-MA-086 NH:200395-B/C CT:PH-0574 ME:MA086 RI:65

Laboratory Sample Number: L0011589-10 WILLOW POND Sample Matrix: WATER	ber: L0011589-10 WILLOW POND ROAD BRIDGE WATER	Date Collected: 14-DEC-2000 14:30 Date Received : 14-DEC-2000 Date Reported : 21-DEC-2000
Condition of Sample:	Satisfactory	Field Prep: None
Tumber & Type of Cont.	Number & Type of Containers: 2-Bacteria, 3-Plastic	

PARAMETER	RESULT	UNITE	RDL	REF METHOD	DATE ID PREP ANAL
Tuzbidity	15.	NTU	0.20	30 2136B	1214 19:30 AC
Color, True	7.0	A.P.C.U.	nu O	30 21208	1214 19:35 AC
Color, Apparent	. 27.	A.P.C.U.	e O	30 21208	1214 18130 AC
Acidity	Q.	mg CaCO3/L2.0	0.3	30 2310B	1219 14:00 NA
Alkalinicy, Total	т т	mg CaCO3/L2.0	0.	30 23208	1220 10:20 MA
Solids, Total Suspended	12.	mg/1	ю 0	30 2540D	1220 16:30 57
Nitrogen, Ammonia	0.083	mg/1 0	0.075	30 4500NH3~BH	1219 11:03 ED
Nitrogen, Nitrate/Mitrite	1.2	mg/1 0	0.10	10 4500MO3-F	1215 20121 DE
Phosphorus, Total	0.11	mg/l .0	0.01	30 45007-8	1220 18:00 JT
Phosphorus, Orthophosphate	ě	mg/l 0	0.01	30 45602-12	TC 01:12 %121
Coliform, Fecal (MPN)	500	MPN/100ml 20.		30 92218	1214 18:00 AB
Coliform, Fecal Strep (MPN)	o m m	MPN/100ml 20.		36 92308	1216 19:30 AB

Comments: Complete list of References and Glossary of Terms found in Addendum I 12210004:05 Page 12 of 16 DEC. 27. 2000 11:28AM CAMP DRESSER & MCKEE

ALPHA ANALYTICAL LABORATORIES CERTIFICATE OF ANALYSIS

MA:M-MA-086 NH:200395-B/C CT:PH-0574 MB:MA086 RI:65

Sample Matrix:	MATER		ğ	Date Reported :	21-DEC-2000
Condition of Sample:	Satisfactory		¥	Field Prep: N	None
Number & Type of Containers: 2-Bacteria, 3-Plactic	: 2-Bacteria	,3-plastic			
Parameter	RESOLT	UNITS	RDL	REF METHOD	DATE ID PREP ANAL
Turbidity	24.	NTO	0.20	36 2130%	1214 19:30 AC
Color, True	6.0	A.P.C.U.	5.0	36 2120M	DE SEIST WIZE
Color, Apparent	47.	A.P.C.U.	ηυ	30 21208	1214 19120 AG
Acidity	Q.	mg CaCO3/12.0	0.0	30 23108	1219 14:00 NB
Alkalinity, Total	24.	mg CaCO3/L2.0	2.0	36 23208	1220 10120 MR
Solids, Total Suspended	18.	mg/1	0.0	30 25400	1220 16:30 DT
Nitrogen, Ammonia	0.465	пд/1	0,075	30 4500М3-ВЖ	1219 11:04 WD
Nitrogen, Nitrate/Nitrite	0.34	mg/l	0.10	30 45DDR03-F	1215 19:18 DE
Phosphorus, Total	0.14	mg/1	0.01	30.4800P-E	1220 18:00 02
Phosphórus, Orthophosphate	0.04	mg/1	0.01	30 4500P-E	1214 21.10 JT
Coliform, Fecal (MPN)	70.	MPN/100ml 20	20.	30 92312	1214 18:00 AB
	ć,	Nemat /4 Octom	c		

Comments: Complete list of References and Glossary of Terms found in Addendum I 12210004:05 Page 12 of 16

ALPHA ANALYTICAL LABORATORIES QUALLTY ASBURANCE BATCH DUPLICATE ANALYSIS

Laboratory Job Number: L0011589

	1			d.						Phosphorus, Orthophosphate for sample (#) 01-11 (10011589-08, WG72257]
	1			()		10.00				100
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1			~	.··	(F)	61	T	Es W	=	CA.
	1 77	6	111		49	B	402	80	67.0	¥G7
	18.	11)·	722	3/1	777	33	23	i i	72	77.
ta	722	0.2	D D	000	₹ 00	7	*	20	38	, C
Units	D × p	34	ri Di	14.00 14.00	E S	10 H	평린	17	8.7	98 4
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Val	1 4 5 E	(B) (B)	22.	÷ ₽	70	100	4.4	age.	P. 23	.0.9
	ole Te	id.	In a	9) e	E C	11	· · · · · · · · · · · · · · · · · · ·	10.0	Tage O	200
-	Turbidity for sample(s) di-ii (Zodiis89-11, wd72251)	Color, True For sample(s) 01-11 (poblisse-11, MG72255)	Color, Apparent for sample (#) 01-11 (4000,1989-01, 4072254)	Adidity for sample (s) Or-in (f.0011589-11) WO126841	44: 20:	(84) 103-	36	30	thosphorus, Total for sample(s) di-11 (L0011589-08; MG7Z670) 0.20 0.21 5 mg/l	Tags
Value 1	- 14E	H	S.	III.	9A)	ing sk	46	77	านัก	NA NA
Val	B 4	M 0	44.0	10 A	10 70 70 TO	Det.	62	-4 n	20	0.9
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	:	0)	- 14 m		Ĕ	- F	THE	# #1 91	, P	OF
H	Turbidity	Color, True	Color, Apparent	Acidity	Alkalinity, Total Altalitity, Total for sample(a) or it (Loolisbu-oz, NG72646) alkalinity, Total $\frac{270}{100}$	Solids, Total Suspended for Hamplets, 01-11 (1,001,1589-01, WG72610)	Nirrogen, Ammonia 1.62 tor sample (s) 01-11 (10011585-01, WG72403)	Mirrogen, Nitrate/Nitrite for sample(s) 01-11 (10011589-01, wg72302).	Phosphorus, Total	90
io t		lor, Tru	4	. 5	1		H	200	OF	O. C.
ran.	rb4	Lor	H	9	E		8	~: 0 H	: Cal	T. d
Parameter	. 2	Col	00	ACX	27.	100	(4	- 건	poq	ho
					~	. 03	A	24	- D4	- : Di

ALPHA AMALYTICAL LABORATORIES QUALITY ABBURANCE BATCH SPIKE AMALYSES

Laboratory Job Mumber: 10011589

Parameter

* Recovery

Mitrogen, Mitrate/Mitrite SHIKE TOX SAMENE (B) Qi-11 (1.0011569-11, WG/2912) Phosphorus, Orthophosphate 133 for sample(8) 01-11 (WG72457) :: Phosphorus, Orthophosphate, Fritter for sample (e) Of 12 (E0011589-01, WG72397). Alkalinity, rotal for simple (s) 01-12 (robilible-04, WG72648); Nithogen, Ammonsa Spira for sample (s) bi.it. (10011589-01, WG/2403) ः े Ebosphorus, total spiks for sample(s) br-th (bothasse-di. wethern) । 103 Ralinity, Total 1000, Total 108 for sample (s) Grill (WG7264). MACACOGEN, Amendata 100 fox semple(s) 01-11 (W012463) Phosphorus, Motal ack for sample (s) dr.11 (W692670) Turbidity 1550 200 Bamble (8) 01-22 (W072351) Nitrogen, Nitrate/Nitrite Alkalinity, Total Mitrogen, Ammonia Phosphorus, Total Nitrogen, Ammonia Alkalinity, Total Phosphorus, Total Turbidiey Acidity

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NO.815

Fage 13 of 16

12210004:05

ALPHA ANALYTICAL LABORATORIES QUALITY ASSURANCE BATCH BLANK ANALYSIS

Laboratory Job Number: L0011589

PARAMETER	RESULT	UNITS	RDL	REF METHOD	DATE ID
Turbidity	ik hislyste.	for sample(s)	01-11	30 21305	plank Analysde for Sample(s) 01-11 Seresses NTO NTO 0.20 Seresses
Acidity	ik analysis	Blank Amelysje for sample(s) 01.11 ND mg CaCO3/12.0	2.0		1219 14:00 MA
Alkalinity, Total Shank Analysia itor sample (a) 51-21 0 5 33209	ok analysia	for sample (s)	व्यास्त्र व • व • व	ON PR	1220 10:20 MA
Solids, Total Suspended ND MD MG/L 5.0 30 23400	uk Analysika ND	for sample(m)	5.0 8.0	30-28400	1220 16:30 DT
Blank Azalysis for sample(g) 01-11. Nitrogen, Ammonia ND ND mg/l	K Azislysis	for sample(s)	0.075	He-EHMOOSP OF	LTL Q146 WD
Blank Analysis for sample(s) 01-11 Nitrogen, Nitrate/Nitrite ND mg/l 0.10 30.4800mm3-P	A Amalysis	for sample(B) mg/l	01-11	ao 4500MG3-P	1218 19:15 IN
Phosphorus, Total	k Analysis	for sample(s)	0.01	Blank Analysis for sample(s) oi-ii ; i mg/l mg/l	1220 18:00 07
Blank Anglysis for sample(s) 01-11 (sphosphorus, Orthophosphate ND mg/l 0.01 ss 4500r.	k Anglysia	for sample(s)	0.01	80 45000F	1214 Z1:10 OT
Coliform, Fecal (MPN)	k Analysis	Cor sample(#)	01-11	Blank Analysis for sample(s) on it so some ND NDN/loom1 2.0	1214 18:00 AB
Coliform, Fecal Strep (MPN) ND MEN/100ml 2.0	k Analysis.	For sample(B)	01,11	30 82308	1214 19130 AB

ALPHA ANALYTICAL LABORATORIES ADDENDUM I

REFERENCES

30. Standard Methods for the Examination of Water and Wastewater. APRA-AWWA-WPCF. 18th Edition. 1992.

GLOSSARY OF TERMS AND SYNGOLS

Reference number in which test method may be found. REF

METHOD Method number by which analysis was performed

Initials of the analyst.

A

LIMITATION OF LIABILITIES

Alpha Analytical, Inc. performs services with ressonable care and diligence normal to the analytical testing laboratory industry. In the event of an error, the sole and exclusive responsibility of Alpha Analytical, Inc., shall be to re-perform the work at it's som expense. In no svent shall Alpha Analytical, Inc., be hild liable for any incidental consequential or special damages, including but not limited to, damages in any way connected with the use of interpretation of, information or analysis provided by Alpha Analytical, Inc.

We strongly urge our clients to comply with EPA protocol regarding sample volume, preservation, cooling, containers, sampling procedures, holding times and splitting of samples in the field.

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DEC.27.2000 11:31AM

CAMP DRESSER & MCKEE

NO.815

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13210004:05

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	Drive Westborough, MA 01581				Νō	3	379	5						ate Rec'd in Lab:	Date Bue:
	220 FAX: 508.898.9193 www.alpha		_		_			_		Sheet		_ of _	1	2-14-00	latel
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ξ	- TANNERY BROOK DRAIN			1318	0	N	X	X	X	X	X	X	X		4111
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MA:M-MA-086 NH:200395-B/C. CT:PH-0574 ME:MA086 RI:65 NY:11148

CERTIFICATE OF ANALYSIS

Eight Walkup Drive Westborough, Massachusetts 01581-1019 (508) 898-9220

ALPHA ANALYTICAL LABORATORIES

Laboratory Job Number: L0009007 BOSTON BROOKLINE BOSTON BROOKLINE BOSTON BROOKLINE BOSTON BROOKLINE BOSTON BROOKLINE BOSTON BROOKLINE BROOKLINE BOSTON BROOKLINE BOSTON BROOKLINE BOSTON BROOKLINE BOSTON BROOKLINE BOSTON BROOKLINE SAMPLE LOCATION Date Received: 06-0CT-00 Date Reported: 16-OCT-00 Delivery Method: Client Invoice Number: 42450 BOSTON MUDDY RIVER @ WILLOW POND BRID MUDDY RIVER @ LONGWOOD BRIDGE MUDDY RIVER @ AGISSIZ BRIDGE MUDDY RIVER @ BACK BAY EMMANUEL COLLEGE DRAIN CLIENT IDENTIFICATION HUNTINGTON AVE DRAIN TANNARY BROOK DRAIN VILLAGE BROOK DRAIN LONGWOOD AVE DRAIN WILLOW POND OUTLET DAISY FIELD DRAIN CHESTNUT ST DRAIN BOSTON GATE HOUSE Camp Dresser & McKee, Inc Cambridge, MA 02139 Address: 1 Cambridge Place 50 Hampshire Street Bruce Conklin MUDDY RIVER ALPHA SAMPLE NUMBER Project Number: L0009007-03 L0009007-01 L0009007-02 L0009007-04 L0009007-05 L0009007-06 L0009007-07 L0009007-08 L0009007-09 L0009007-10 L0009007-11 L0009007-12 Client: Attn: Site:

I attest under the pains and penalties of perjury that, based upon my inquiry of those individuals immediately responsible for obtaining the information, the material contained in this report is, to the best of my knowledge and belief, accurate and complete. This certificats of analysis is not complete unless this page accompanies any and all pages of this

BOSTON BROOKLINE

L0009007-14

Scott McLean - Laboratory Director

Authorized by:

MA:M-MA-086 NH:200395-B/C CT:PH-0574 ME:MA086 RI:65

6-OCT-2000 6-OCT-2000 6-OCT-00	None	
Date Collected: 06-0CT-2000 Date Received: 06-0CT-2000 Date Reported: 16-0CT-00	Field Prep: No	
L0009007-01 CHESTNUT ST DRAIN WATER	Satisfactory	s: 2-Bacteria, 3-Plastic
Laboratory Sample Number: L0009007-01 CHESTNUT ST Sample Matrix: WATER	Condition of Sample:	Number & Type of Containers: 2-Bacteria, 3-Plastic

PARAMETER	RESULT	UNITS	RDL	REF	METHOD	DATES ID PREP ANALYSIS	
Turbidity	18.	NTLO	0.20	30	2130B	06-Oct RS	_
Color, True	22.	A.P.C.U.	5.0	30	2120B	06-Oct RS	
Color, Apparent	ເດ ເດ	A.P.C.U.	. 55	30	2120B	06-Oct RS	
Acidity	ON	mg CaCO3/L2.0	L2.0	30	2310B	13-Oct RS	
Alkalinity, Total	20.	mg CaCO3/L2.0	L2.0	30	2320B	14-Oct AN	
Solids, Total Suspended	m m	mg/1	5.0	30	2540D	13-Oct DT	
Nitrogen, Ammonia	0.177	mg/1	0.075	30	4500NH3-BH	16-Oct DE	
Nitrogen, Nitrate/Nitrite	0.85	mg/1	0.10	30	4500NO3-F	11-Oct DD	
Phosphorus, Total	0.08	mg/1	0.01	30	4500P-E	13-Oct JT	
Phosphorus, Orthophosphate	0.03	mg/1	0.01	30	4500P-E	06-0ct JT	
Coliform, Fecal (MF)	.2000	col/100ml	0.6	30	9222D	06-Oct AB	
Coliform, Fecal Strep (MPN)	240	MPN/100ml 2.0	2.0	30	9230B	06-Oct AB	

Comments: Complete list of References and Glossary of Terms found in Addendum I

Comments: Complete list of References and Glossary of Terms found in Addendum I

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ALPHA ANALYTICAL LABORATORIES CERTIFICATE OF ANALYSIS

MA:M-MA-086 NH:200395-B/C CT:PH-0574 ME:MA086 RI:65

ber	L0009007-02 WILLOW POND OUTLET WATER	Date Collected: 06-0CT-2000 Date Received: 06-0CT-2000 Date Reported: 16-0CT-00
Condition of Sample: Satisfactory Number & Type of Containers: 1-Plastic	Satisfactory :8: 1-plastic	Field Prep: None

PARAMETER	RESULT	UNITS	RDL	00 80 80	REF METHOD	DATES ID PREP ANALYSIS
Total Metals			7	्रे स	3015	
Lead, Total	QN	mg/l	0.05	н	6010B	10-Oct 12-Oct RW

NH:200395-B/C CT:PH-0574 ME:MA086 RI:65 MA:M-MA-086

Laboratory Sample Number: L0009007-03 Date Collected: 06-OCT-2000 MUDDY RIVER @ WILLOW POND BR Date Received: 06-OCT-2000 Sample Matrix: None Field Prep: Satisfactory Condition of Sample:

Number & Type of Containers: 2-Bacteria, 3-Plastic

PARAMETER	RESULT	UNITS	RDL	REF	мвтнор	DATES ID PREP ANALYSIS	
Turbidity	12.	NTO	0.20	30	2130B	06-Oct RS	
Color, True	23.	A.P.C.U.	0.0	30	2120B	06-Oct RS	
Color, Apparent	52.	A.P.C.U.	20.	30	2120B	06-Oct RS	
Acidity	MO	mg CaCO3/L2.0	/L2.0	30	2310B	13-Oct RS	
Alkalinity, Total	19.	mg CaCO3/L2.0	/L2.0	30	2320B	14-0ct AN	
Solids, Total Suspended	150	mg/1	10.	30	2540D	13-Oct DT	
Nitrogen, Ammonia	0.103	mg/1	0.075	30	4500NH3-BH	16-Oct DE	4
Nitrogen, Nitrate/Nitrite	0.45	mg/1	0.10	30	4500NO3-F	11-Oct DD	ř.
Phosphorus, Total	0.29	mg/1	0.02	30	4500P-E	13-Oct JT	щ
Phosphorus, Orthophosphate	0.01	mg/1	0.01	30	4500P-E	06-Oct JT	щ
Coliform, Fecal (MPN)	>1600	MPN/100ml	1 2	30	9221E	06-Oct AB	Ü
Coliform, Fecal Strep (MPN)	>1600	MPN/100ml	1 2	30	9230B	06-Oct AB	O

Comments: Complete list of References and Glossary of Terms found in Addendum I

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ALPHA ANALYTICAL LABORATORIES CERTIFICATE OF ANALYSIS

MA:M-MA-086 NH:200395-B/C CT:PH-0574 ME:MA086 RI:65

Laboratory Sample Number: L0009007-04 DAISY FIELD WATER	L0009007-04 DAISY FIELD DRAIN WATER	Date Collected: 06-0CT-2000 Date Received: 06-0CT-2000 Date Reported: 16-0CT-00	06-OCT-2000 06-OCT-2000 16-OCT-00	
Condition of Sample:	Satisfactory .	Field Prep: N	None	
Number & Type of Containers: 2-Bacteria, 3-Plastic	rs: 2-Bacteria, 3-Plastic			

Parameter	RESULT	UNITS	RDL	REF	METHOD	DATES PREP ANALYSIS	
Turbidity	11.	UTN	0.20	30	2130B	06-0ct RS	S
Color, True	22.	A.P.C.U.	5.0	30	2120B	06-Oct RS	RS
Color, Apparent	72.	A.P.C.U.	20.	30	2120B	06-0ct RS	RS
Acidity	CN	mg CaCO3/L2.0	/12.0	30	2310B	13-Oct RS	SS
Alkalinity, Total	40.	mg CaCO3/L2.0	/12.0	30	2320B	14-0ct AN	N.
Solids, Total Suspended	°.	mg/1	5.0	30	2540D	13-oct DT	OT
Nitrogen, Ammonia	1.29	mg/1	0.075	30	4500NH3-BH	16-oct DE	E
Nitrogen, Nitrate/Nitrite	3.1	mg/l	0.10	30	4500NO3-F	11-Oct DD	Ð
Phosphorus, Total	0.40	mg/1	0.02	30	4500P-E	13-0ct JT	E
Phosphorus, Orthophosphate	0.23	mg/1	0.01	30	4500P-E	06-0ct JT	Ħ
Coliform, Fecal (MF)	22000	col/100ml 100	100	30	9222D	06-Oct AB	9
Coliform, Fecal Strep (MPN)	>1600	MPN/100ml 2	6	30	9230B	06-Oct AB	9

Comments: Complete list of References and Glossary of Terms found in Addendum I 10160005:16

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MA:M-MA-086 NH:200395-B/C CT:PH-0574 ME:MA086 RI:65

Laboratory Sample Number: L0009007-05 VILLAGE BROG Sample Matrix: WATER	L0009007-05 VILLAGE BROOK DRAIN WATER	Date Collected: 06-0CT-2000 Date Received: 06-0CT-2000 Date Reported: 16-0CT-00	Collected: 06-0CT-2000 Received: 06-0CT-2000 Reported: 16-0CT-00
Condition of Sample:	Satisfactory	Field Prep:	None
Number & Type of Containers: 2-Bacteria, 3-Plastic	rs: 2-Bacteria, 3-Plastic		

Parameter	RESULT	UNITS	RDL	REF	METHOD DA	DATES ID	
Turbidity	4.7	DIN	0.20	30	2130B	06-Oct RS	
Color, True	18,	A.P.C.U.	0.0	30	2120B	06-Oct RS	
Color, Apparent	18.	A.P.C.U.	5.0	30	2120B	06-Oct RS	-
Acidity	QN QN	mg CaCO3/L2.0	L2.0	30	2310B	13-Oct RS	
Alkalinity, Total	37.	mg CaCO3/L2.0	L2.0	30	2320B	14-Oct AN	
Solids, Total Suspended	QN QN	mg/1	5.0	30	2540D	13-Oct DT	
Nitrogen, Ammonia	0.632	mg/1	0.075	30	4500NH3-BH	16-Oct DE	
Nitrogen, Nitrate/Nitrite	0.46	mg/1	0.10	30	4500NO3-F	11-Oct DD	
Phosphorus, Total	0.13	mg/1	0.01	30	4500P-E	13-Oct JT	
Phosphorus, Orthophosphate	90.0	mg/1	0.01	30	4500P-E	06-0ct JT	
Coliform, Fecal (MF)	ě	col/100ml	2.0	30	9222D	06-Oct AB	
Coliform, Fecal Strep (MPN)	QN	MPN/100ml 2.0	2.0	30	9230B	06-Oct AB	

Comments: Complete list of References and Glossary of Terms found in Addendum I

Comments: Complete list of References and Glossary of Terms found in Addendum I

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ALPHA ANALYTICAL LABORATORIES CERTIFICATE OF ANALYSIS

MA:M-MA-086 NH:200395-B/C CT:PH-0574 ME:MA086 RI:65

	Laboratory Sample Number: Sample Matrix:	L0009007-06 HUNTINGTON AVE DRAIN WATER	DRAIN	Date Date Date	Rec Rep	Date Collected: 06-0CT-2000 Date Received: 06-0CT-2000 Date Reported: 16-0CT-00	2000	
	Condition of Sample:	Satisfactory		Field Prep:	H H T	ap: None		
	Number & Type of Containers:	s: 2-Bacteria, 3-Plastic	3-Plastic					
	Parameter	RESULT	UNITS	RDL	REF	МЕТНОБ	DATES	DATES ID
κ λ	Turbidity	170	DIN	0.20	30	2130B		06-Oct RS
Ø	Color, True	19.	A.P.C.U.	5.0	30	2120B		06-Oct RS
- -	Color, Apparent	160	A.P.C.U.	100	30	2120B		06-Oct RS
s	Acidity	CIN	mg CaCO3/L2.0	62.0	30	2310B		13-Oct RS
z	Alkalinity, Total	34.	mg CaCO3/L2.0	12.0	30	2320B		14-0ct AN
Fr	Solids, Total Suspended	640	mg/1	25.	30	2540D		13-Oct DT
ш	Nitrogen, Ammonia	0.637	mg/1	0.150	30	4500NH3-BH		16-Oct DE
Ω	Nitrogen, Nitrate/Nitrite	0.71	mg/1	0.10	30	4500NO3-F		11-0ct DD
H	Phosphorus, Total	1.0	mg/1	0.05	30	4500P~E		13-Oct JT
Fe	Phosphorus, Orthophosphate	0.02	mg/l	0.01	30	4500P-E		06-0ct JT
m	Coliform, Fecal (MPN)	>1600	MPN/100ml	6	30	9221E		06-oct AB
m	Coliform, Fecal Strep (MPN)	900	MPN/100ml	2.0	30	9230B		06-Oct AB

MA:M-MA-086 NH:200395-B/C CT:PH-0574 ME:MA086 RI:65

Laboratory Sample Number: L0009007-07 TANNARY BROG Sample Matrix:	L0009007-07 TANNARY BROOK DRAIN WATER	Date Collected: 06-0CT-2000 Date Received: 06-0CT-2000 Date Reported: 16-0CT-00
Condition of Sample:	Satisfactory	Field Prep: None
Number & Type of Containers: 2-Bacteria, 3-Plastic	rs: 2-Bacteria, 3-Plastic	

PARAMETER	RESULT	UNITS	RDL	REF	METHOD	DATES ID	
Turbidity	14.	UTU	0.20	30	2130B	06-Oct RS	
Color, True	23.	A.P.C.U.	0.0	30	2120B	06-Oct RS	
Color, Apparent	52.	A.P.C.U.	20.	30	21208	06-0ct RS	
Acidity	QN	mg CaCO3/L2.0	12.0	30	2310B	13-Oct RS	
Alkalinity, Total	20.	mg CaCO3/L2.0	12.0	3.0	2320B	14-0ct AN	
Solids, Total Suspended	11.	mg/1	5.0	30	2540D	13-Oct DT	
Nitrogen, Ammonia	0.246	mg/l	0.075	30	4500NH3-BH	16-Oct DE	
Nitrogen, Nitrate/Nitrite	- 본	mg/1	0.10	30	4500NO3-F	11-oct DD	
Phosphorus, Total	0.14	mg/1	0.01	30	4500P-E	13-Oct JT	
Phosphorus, Orthophosphate	0.07	mg/1	0.01	30	4500P-E	06-Oct JT	
Coliform, Fecal (MF)	6500	col/100ml 100	100	30	9222D	06-Oct AB	
Coliform, Fecal Strep (MPN)	>1600	MPN/100ml	8	30	9230B	06-Oct AB	

Comments: Complete list of References and Glossary of Terms found in Addendum I

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ALPHA ANALYTICAL LABORATORIES CERTIFICATE OF ANALYSIS

MA:M-MA-086 NH:200395-B/C CT:PH-0574 ME:MA086 RI:65

Sample Matrix:	WATER	Date Received : 06-0CT-2000 Date Reported : 16-0CT-00
Condition of Sample:	Satisfactory	Field Prep: None
Number & Type of Containers: 1-Plastic	s: 1-Plastic	

E .		RW							
ALYSIS		12-0ct							
DATES ID		10-Oct 12-Oct RW							
REF METHOD	3015	6010B ·							
RRF	-4	н							
		0.05							
RESULT UNITS RDL		. mg/1							
RESULT	*.	QN							
141		4							
	18	-							
PARAMETER	Total Metals	Lead, Total							
PARA	Total	Lead							
				-					

Comments: Complete list of References and Glossary of Terms found in Addendum I

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MA:M-MA-086 NH:200395-B/C CT:PH-0574 ME:MA086 RI:65

Sample Matrix: WATER	MUDDY RIVER @ LONGWOOD BRID Date Received : 06-OCT-2000 WATER	BRID Date Rec	Date Received: 06-OCT-2000 Date Reported: 16-OCT-00	-OCT-2000 -OCT-00
Condition of Sample: Satis	Satisfactory	Field Prep:	ip: None	a)

PARAMETER	RESULT	UNITS	RDL	REF	METHOD	DATES ID PREP ANALYSIS	10
Turbidity	12.	NTO	0.20	30	21308	06-Oct RS	
Color, True	18.	A.P.C.U.	5.0	30	2120B	06-Oct RS	
Color, Apparent	56.	A.P.C.U.	20.	30	2120B	06-0ct RS	-
Acidity	Q.	mg CaCO3/L2.0	/1.2.0	30	23108	13-Oct RS	
Alkalinity, Total	31.	mg CaCO3/L2.0	/L2.0	30	2320B	14-Oct AN	- to-
Solids, Total Suspended	11.	mg/1	0.0	30	2540D	13-Oct DT	
Nitrogen, Ammonia	0.500	mg/1	0.075	30	4500NH3-BH	16-Oct DE	
Nitrogen, Nitrate/Nitrite	0.64	mg/1	0.10	30	4500NO3-F	11-Oct DD	
Phosphorus, Total	0.15	mg/1	0.01	30	4500P-E	13-Oct JT	
Phosphorus, Orthophosphate	0.05	mg/1	0.01	30	4500P-E	06-0ct JT	
Coliform, Fecal (MF)	49.	col/100ml 2.0	2.0	30	9222D	06-Oct AB	
Coliform, Fecal Strep (MPN)	22.	MPN/100ml 2.0	2.0	30	9230B	06-Oct AB	

Comments: Complete list of References and Glossary of Terms found in Addendum I

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ALPHA ANALYTICAL LABORATORIES CERTIFICATE OF ANALYSIS

MA: M.A. 086 NH: 200395-B/C CT: PH-0574 ME: MA086 RI: 65

00			DATES ID	06-Oct RS	06-Oct RS	06-Oct RS	13-Oct RS	14-Oct AN	13-Oct DT	16-Oct DE	11-Oct DD	13-Oct JT	06-0ct JT	24 450-20
Collected: 06-OCT-2000 Received: 06-OCT-2000 Reported: 16-OCT-00	p: None		METHOD DA	2130B	2120B	21208	2310B	2320B	2540D	4500NH3-BH	4500NO3-F	4500P-E	4500P-E	9222D
	Field Prep:		REF	30	30	30	30	30	30	30	30	30	30	30
Date Date	Fis		RDL	0.20	ر. 0	20.	12.0	1.2.0	5.0	0.075	0.10	0.01	0.01	9.0
DRAIN		3-Plastic	UNITS	NTU	A.P.C.U.	A.P.C.U.	mg CaCO3/L2.0	mg CaCO3/L2.0	mg/1	mg/1	mg/1	mg/1	mg/1	col/100ml
L0009007-10 LONGWOOD AVE DRAIN WATER	Satisfactory	s: 2-Bacteria, 3-Plastic	RESULT	11.	27.	58 .	CN	31.	QN	0.380	6	0.11	0.04	1200
Laboratory Sample Number: L0009007-10 Sample Matrix: WATER	Condition of Sample: S	Number & Type of Containers:	PARAMETER	Turbidity	Color, True	Color, Apparent	Acidity	Alkalinity, Total	Solids, Total Suspended	Nitrogen, Ammonia	Nitrogen, Nitrate/Nitrite	Phosphorus, Total	Phosphorus, Orthophosphate	Coliform, Fecal (MF)

Comments: Complete list of References and Glossary of Terms found in Addendum I 10160005:16 Page 11 of 20

06-Oct AB

9230B

30

MPN/100ml 2

>1600

Coliform, Fecal Strep (MPN)

MA:M-086 NH:200395-B/C CT:PH-0574 ME:MA086 RI:65

Laboratory Sample Number: L0009007-11 EMMANUEL CO Sample Matrix: WATER	L0009007-11 EMMANUEL COLLEGE DRAIN WATER	Date Collected: 06-0CT-2000 Date Received: 06-0CT-2000 Date Reported: 16-0CT-00	-2000 -2000 -00
Condition of Sample:	Satisfactory	Field Prep: None	
Number & Two of Containers: 2-Bacteria.3-Plastic	rs: 2-Bacteria.3-Plastic		

PARAMETER	RESULT	UNITS	RDL	REF	метнор	DATES ID PREF ANALYSIS	
Turbidity	34.	NTO	0.20	30	2130B	06-Oct RS	_
Color, True	18.	A.P.C.U.	5.0	30	2120B	06-Oct RS	
Color, Apparent	80.	A.P.C.U.	50.	30	2120B	06-oct RS	
Acidity	2.0	mg CaCO3/L2.0	/12.0	30	2310B	13-0ct RS	_
Alkalinity, Total	16.	mg CaCO3/L2.0	/12.0	30	2320B	14-0ct AN	
Solids, Total Suspended	43.	mg/1	5.0	30	2540D	13-0ct DT	-
Nitrogen, Ammonia	0.195	mg/1	0.075	30	4500NH3-BH	16-0ct DE	
Nitrogen, Nitrate/Nitrite	0.64	mg/1	0.10	30	4500NO3-F	11-Oct DD	
Phosphorus, Total	0.18	mg/1	0.02	30	4500P-E	13-Oct JT	
Phosphorus, Orthophosphate	0.01	mg/l	0.01	30	4500P-E	06-0ct JT	
Coliform, Fecal (MF)	2000	col/100ml	0.6 1	30	9222D	06-Oct AB	
Coliform, Fecal Strep (MPN)	240	MPN/100ml	1 2.0	30	9230B	06-Oct AB	

Comments: Complete list of References and Glossary of Terms found in Addendum I

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ALPHA ANALYTICAL LABORATORIES CERTIFICATE OF ANALYSIS

MA:M-MA-086 NH:200395-B/C CT:PH-0574 ME:MA086 RI:65

Condition of Sample: Satisfactory Field Prep: None Number & Type of Containers: 2-Bacteria, 3-Plastic RESULT UNITS RDL REF METHOD DATES TD Turbidity 2.6 NTU 0.20 30 2130B 06-0ct RS Color, True 18. A.P.C.U. 5.0 30 2120B 06-0ct RS Color, Apparent 24. A.P.C.U. 5.0 30 2120B 06-0ct RS Acidity ND mg Caco3/L2.0 30 2120B 14-0ct RS Alkalinity, Total 37. mg/l 5.0 30 2320B 14-0ct RS Alkalinity, Total ND mg/l 5.0 30 4500NG3-F 11-0ct BS Nitrogen, Ammonia ND mg/l 0.05 30 4500NG3-F 11-0ct BS Phosphorus, Total ND mg/l 0.01 30 4500NG3-F 11-0ct BS Phosphorus, Pecal (MPN) 50 MPN/100m1 2.0 30 9221E 06-0ct AB	Laboratory Sample Number: L0009007-12 BOSTON GATE Sample Matrix: WATER	L0009007-12 BOSTON GATE HOUSE WATER	asnoi	Date Date	Rec Rep	Collected: 06-OCT-200 Received: 06-OCT-200 Reported: 16-OCT-00	06-OCT-2000 06-OCT-2000 16-OCT-00
Type of Containers: 2-Bacteria, 3-Plastic RESULT UNITS RDL REP METHOD DATES 2.6 NTU 0.20 30 2130B 06-Oct 06-Oct 18. A.P.C.U. 5.0 30 2120B 06-Oct 06-Oct 18. A.P.C.U. 5.0 30 2120B 06-Oct 13-Oct 19-Oct 19-Oc	Condition of Sample:	Satisfactory		Fiel	d Pr		
PRESULT UNITS RDL RETHOD DATES PREP ANALYSIS	생		,3-Plastic				
ue 18. A.P.C.U. 5.0 30 2130B 06-Oct parent 24. A.P.C.U. 5.0 30 2120B 06-Oct parent 24. A.P.C.U. 5.0 30 2120B 06-Oct y, Total ND mg CaCO3/L2.0 30 2120B 06-Oct y, Total 37. mg CaCO3/L2.0 30 2120B 14-Oct ctal Suspended 5.6 mg/l 0.075 30 4500NH3-BH 16-Oct Ammonia ND mg/l 0.075 30 4500NH3-BH 16-Oct s, Total 0.04 mg/l 0.01 30 4500P-B 13-Oct s, Orthophosphate ND mg/l 0.01 30 4500P-B 06-Oct Fecal (MPN) 50. MPN/l00ml 2.0 30 9231B 06-Oct 06-Oct	Parameter	RESULT	UNITS	RDL	REF	МЕТНОБ	1
ue 18. A.P.C.U. 5.0 30 2120B 06-Oct parent 24. A.P.C.U. 5.0 30 2120B 06-Oct y, Total ND mg CaCO3/L2.0 30 2310B 13-Oct y, Total 37. mg CaCO3/L2.0 30 2320B 14-Oct Ammonia ND mg/l 5.0 30 2540D 13-Oct Nitrate/Nitrite 0.55 mg/l 0.075 30 4500NH3-BH 16-Oct s, Total 0.04 mg/l 0.01 30 4500P-B 13-Oct s, Orthophosphate ND mg/l 0.01 30 4500P-B 06-Oct Fecal (MPN) 50. MPN/100ml 2.0 30 9231B 06-Oct 06-Oct	Turbidity	2,6	NTU	0.20	30	21308	06-0ct RS
parent 24. A.P.C.U. 5.0 30 2120B 06-oct Y, Total ND mg CaCO3/L2.0 30 2320B 14-oct Otal Suspended 5.6 mg/l 5.0 30 2540D 13-oct Ammonia ND mg/l 0.075 30 4500NH3-BH 16-oct S, Total 0.55 mg/l 0.10 30 4500P-B 13-oct S, Orthophosphate ND mg/l 0.01 30 4500P-B 13-oct Fecal (MPN) 50. MPN/100ml 2.0 30 9231B 06-oct Fecal Strep (MPN) 500 MPN/100ml 2.0 30 9230B 06-oct		18.	A.P.C.U.	5.0	30	2120B	
Y, Total ND mg CaCO3/L2.0 30 2310B 13-Oct Otal Suspended 5.6 mg/l 5.0 30 2320B 14-Oct Ammonia ND mg/l 0.075 30 4500NH3-BH 16-Oct Nitrate/Nitrite 0.55 mg/l 0.10 30 4500NG3-F 11-Oct s, Total 0.04 mg/l 0.01 30 4500P-B 13-Oct Fecal (MPN) 50 MPN/100ml 2.0 30 9231B 06-Oct Fecal Strep (MPN) 500 MPN/100ml 2.0 30 9230B 06-Oct	Color, Apparent	24.	A.P.C.U.	5.0	30	2120B	06-0ct F
Y, Total 37. mg CaCO3/L2.0 30 2320B 14-Oct otal Suspended 5.6 mg/l 5.0 30 2540D 13-Oct Ammonia ND mg/l 0.075 30 4500NH3-BH 16-Oct Nitrate/Nitrite 0.55 mg/l 0.10 30 4500P-B 11-Oct s, Total 0.04 mg/l 0.01 30 4500P-B 13-Oct Fecal (MPN) 50. MPN/100ml 2.0 30 9221E 06-Oct Fecal Strep (MPN) 500 MPN/100ml 2.0 30 9230B 06-Oct	Acidity	CN	mg CaCO3/	L2.0	30	2310B	13-0ct R
Ammonia ND mg/l S.0 30 2540D 13-Oct Ammonia ND mg/l 0.075 30 4500NH3-BH 16-Oct Nitrate/Nitrite 0.55 mg/l 0.10 30 4500N-B 11-Oct s, Total 0.04 mg/l 0.01 30 4500P-B 13-Oct s, Orthophosphate ND mg/l 0.01 30 4500P-B 06-Oct Fecal (MPN) 50 MPN/100ml 2.0 30 9221B 06-Oct Fecal Strep (MPN) 500 MPN/100ml 2.0 30 9230B 06-Oct	Alkalinity, Total	37.	mg CaCO3/	L2.0	30	2320B	14-0ct A
Ammonia ND mg/l 0.075 30 4500NH3-BH 16-Oct Nitrate/Nitrite 0.55 mg/l 0.10 30 4500P-B 11-Oct s, Total 0.04 mg/l 0.01 30 4500P-B 13-Oct s, Orthophosphate ND mg/l 0.01 30 4500P-B 06-Oct Fecal (MPN) 50. MPN/100ml 2.0 30 9221B 06-Oct Fecal Strep (MPN) 500 MPN/100ml 2.0 30 9230B 06-Oct	Total	ru A	mg/1	5.0	30	2540D	13-Oct DT
Nitrate/Nitrite 0.55 mg/l 0.10 30 4500NO3-F 11-Oct B, Total 0.04 mg/l 0.01 30 4500P-B 13-Oct S, Orthophosphate ND mg/l 0.01 30 4500P-B 06-Oct Fecal (MPN) 50. MPN/100ml 2.0 30 9221E 06-Oct Fecal Strep (MPN) 500 MPN/100ml 2.0 30 9230B 06-Oct		QN	mg/1	0.075	30	4500NH3-BH	
s, Total 0.04 mg/l 0.01 30 4500P-E 13-Oct s, Orthophosphate ND mg/l 0.01 30 4500P-E 06-Oct Fecal (MPN) 50. MPN/100ml 2.0 30 9221E 06-Oct Fecal Strep (MPN) 500 MPN/100ml 2.0 30 9230B 06-Oct	Nitrogen, Nitrate/Nitrite	0.55	mg/1	0.10	30	4500NO3-F	
s, Orthophosphate ND mg/l 0.01 30 4500P-E 06-Oct Fecal (MPN) 50. MPN/100ml 2.0 30 9221E 06-Oct Fecal Strep (MPN) 500 MPN/100ml 2.0 30 9230B 06-Oct		0.04	mg/1	0.01	30	4500P-E	
Pecal (MPN) 50. MPN/100ml 2.0 30 9221E 06-Oct Pecal Strep (MPN) 500 MPN/100ml 2.0 30 9230B 06-Oct		£	mg/1	0.01	30	4500P-E	
Pecal Strep (MPN) 500 MPN/100ml 2.0 30 9230B 06-Oct	Fecal	50.	MPN/100ml		30	9221E	
	Fecal	200	MPN/100ml		30	9230B	06-0ct A

Comments: Complete list of References and Glossary of Terms found in Addendum I 10160005;16 Page 13 of 20

MA:M-MA-086 NH:200395-B/C CT:PH-0574 ME:MA086 RI:65

Sample Matrix: WATER WATER	MUDDY RIVER @	AGISSIZ BRIDGE	Date Receiv	MUDDY RIVER @ AGISSIZ BRIDGE Date Collected: 0-0-0-2000 WATER
Condition of Sample:	Satisfactory		Field Prep:	None

Parameter	RESULT	UNITS	RDL	REF	METHOD	DATES ID PREP ANALYSIS
Turbidity	10.	DEN	0.20	30	2130B	06-Oct RS
Color, True	23.	A.P.C.U.	0.0	30	2120B	06-0ct RS
Color, Apparent	72.	A.P.C.U.	20.	30	2120B	06-oct RS
Acidity	CIN	mg CaCO3/L2.0	L2.0	30	2310B	. 13-Oct RS
Alkalinity, Total	39.	mg CaCO3/L2.0	1.2.0	30	2320B	14-Oct AN
Solids, Total Suspended	.08	mg/1	10.	30	2540D	13-oct DT
Nitrogen, Ammonia	0.093	mg/1	0.075	30	4500NH3-BH	16-Oct DE
Nitrogen, Nitrate/Nitrite	0.55	mg/1	0.10	30	4500NO3-F	11-Oct DD
Phosphorus, Total	0.27	mg/1	0.02	30	4500P-E	13-Oct JT
Phosphorus, Orthophosphate	Q.	mg/1	0.01	30.	4500P-E	06-0ct JT
Coliform, Fecal (MPN)	1600	MPN/100ml	2.0	30	9221E	06-Oct AB
Coliform, Fecal Strep (MPN)	>1600	MPN/100ml 2	74	30	9230B	06-Oct AB

Comments: Complete list of References and Glossary of Terms found in Addendum I

Comments: Complete list of References and Glossary of Terms found in Addendum I

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ALPHA ANALYTICAL LABORATORIES CERTIFICATE OF ANALYSIS

MA:M-MA-086 NH:200395-B/C CT:PH-0574 ME:MA086 RI:65

Date Collected: 06-0CT-2000 Date Received: 06-0CT-2000 Date Reported: 16-0CT-00	Field Frep: None	
	ory	tic
: L0009007- IPS WATER	Satisfactory	ers: 1-Plas
mple Number	Sample:	of Contain
Laboratory Sample Number: L0009007-14 IPS Sample Matrix: WATER	Condition of Sample:	Number & Type of Containers: 1-Plastic
มี ตั	ŭ	ž

		ONLING	TON.	REF	REF METHOD	DATES PREP ANALYSIS
Total Metals			3015	H	3015	
Lead, Total	QN	mg/1	0.05	н	6010B	10-Oct 12-Oct RW

ALPHA ANALYTICAL LABORATORIES QUALITY ASSURANCE BATCH DUPLICATE ANALYSIS

Laboratory Job Number: L0009007

797 0770 70	Natue	ı va	Value 1 Value 2 RPD	D Units	
urbidity	Turbidity for sample(s) 01,03-07,09-13 (L0009007-13, WG67131) 11.	(8) 01,	03-07,09-13	(L0009007-13,	WG67131)
Color, True	Color, True for sample(s) 01,03-07,09-13 (L0009007-13, WG67006) 23.	23 23	03-07,09-1	3 (L0009007-13, V	WG67006) U.

Color, Apparent for sample(s) 01,03-07,09-13 (L0009007-13, WG67005)
72. 72. 72. 0
A.P.C.U.
Acidity for sample(s) 01,03-07,09-13 (L0009007-13, WG67313)
ND ND ND NC

Alkalinity, Total for sample(s) 01,03-07,09-13 (L0009007-13, WG67341)
Alkalinity, Total
39. 38. 38. 38. Solids, Total Suspended for sample(s) 01,03-07,09-13 (L0009007-06, WG67251)

Solids, Total Suspended for sample(s) 01,03-07,09-13 (L0009007-06, WG67251)

Solids, Total Suspended 640 620 3 mg/l

Mitrogen, Ammonia for sample(s) 01,03-07,09-13 (L0009007-06, WG67270)

Nitrogen, Nitrate/Nitrite for sample(s) 01,03-07,09-13 (L0009007-12, WG67116) Nitrogen, Nitrate/Nitrite 0.55 0.56 2 mg/l

Nitrogen, Nitrate/Nitrite 0.55 0.56 2 mg/l
Phosphorus, Total for sample(s) 01,03-07,09-13 (L0009149-02, WG67326)
Phosphorus, Total 4.9 4.8 2 mg/l

Phosphorus, Orthophosphate for sample(s) 01,03-07,09-13 (L0009007-04, WG66804) Phosphorus, Orthophosphate 0.23 0.23

Total Metals for sample(s) 02,08,14 (L0008881-04, WG66945) ND ND NC Mg/l mg/l

ALPHA ANALYTICAL LABORATORIES QUALITY ASSURANCE BATCH SPIKE ANALYSES

Laboratory Job Number: L0009007

% Recovery

Parameter

The state of the s
Turbidity LCS for sample(s) 01,03-07,09-13 (MG67131)
Acidity LCS for sample(s) 01,03-07,09-13 (WG67313)
Alkalinity, Total LCS for sample(s) 01,03-07,09-13 (WG67341)
Nitrogen, Ammonia LCS for sample(s) 01,03-07,09-13 (WG67270) Nitrogen, Ammonia 96
Nitrogen, Nitrate/Nitrite LCS for sample(s) 01,03-07,09+13 (WG67116 99trogen, Nitrate/Nitrite
Phosphorus, Total LCS for sample(s) 01,03-07,09-13 (WG67326)
Phosphorus, Orthophosphate LGS for sample(s) 01,03-07,09-13 (WG66804 Phosphorus, Orthophosphate
Lead, Total Metals LCS for sample(s) 02,08,14 (WG66945)
Alkalinity, Total SPIKE for sample(s) 01,03-07,09-13 (L0009007-03, WG67)
Nitrogen, Ammonia SPIKE for sample(s) 01,03-07,09-13 (L0009007-05, WG67)
Nitrogen, Nitrate/Nitrite SPIKE for sample(s) 01,03-07,09-13 (L0009007-05) Nitrogen, Nitrate/Nitrite 99
Phosphorus, Total SPIKE for sample(s) 01,03-07,09-i3 (L0009007-05, WG672 Phosphorus, Total
Phosphorus, Orthophosphate SPIKE for sample(s) 01,03-07,09-13 (L0009007-13 Phosphorus, Orthophosphate
Total Metals SPIKE for sample(s) 02,08,14 (L0008881-10, WG66945)

3, WG66804)

326)

WG67116)

341)

(270)

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ALPHA ANALYTICAL LABORATORIES QUALITY ASSURANCE BATCH BLANK ANALYSIS

Laboratory Job Number: L0009007

UNITS RDL REF METHOD
Blank Analysis for sample(s) 01,03-07;09-13 ND NTU 0.20
Blank Analysis for sample(s) 01,03-07,09-13 mg CaCO3/L2.0
Blank Analysis for sample(s) 01,03-07,09-13 mD mg CaCO3/L2.0
Blank Analysis for sample(s) 01,03-07,09-13 ended ND mg/l 5.0
Blank Analysis for sample(s) 01,03-07,09-13 mg/l 0.075 30
Blank Analysis for sample(s) 01,03-07,09-13 Nitrite ND mg/l 0.10 30
Blank Analysis for sample(s) 01,03-07,09-13 mg/l 0.01 30
Blank Analysis for sample(s) 01,03-07,09-13 hosphate ND mg/l 0.01
Blank Analysis for sample(s) 01,04-05,07,09-11 MD col/100ml 1.0 30
Blank Analysis for sample(s) 03,06,12-13
Blank Analysis for sample(s) 01,03-07,09-13 rep (MPN) ND MPN/100ml 2.0 30

ALPHA ANALYTICAL LABORATORIES QUALITY ASSURANCE BATCH BLANK ANALYSIS

Laboratory Job Number: L0009007

Continued

PARAMETER	RESOLT	ONITE	KUL	KBF	REF METHOD	DATES PREP ANALYSIS
Total Metals	Blank Analysis for sample(s) 02,08,14	sample(s)	02,08,14	*	3015	
Lead, Total	QN	mg/1	0.05 1 6010B	н	6010B	10-Oct 12-Oct RW

ALPHA ANALYTICAL LABORATORIES ADDENDUM I

REFERENCES

- Test Methods for Evaluating Solid Waste: Physical/Chemical Methods. EPA SW-846. Update III, 1997.
- 30. Standard Methods for the Examination of Water and Wastewater, APHA-AWWA-WPCF. 18th Edition. 1992.

GLOSSARY OF TERMS AND SYMBOLS

REF Reference number in which test method may be found.

METHOD Method number by which analysis was performed.

Initials of the analyst.

ID

LIMITATION OF LIABILITIES

Alpha Analytical, Inc. performs services with reasonable care and diligence normal to the analytical testing laboratory industry. In the event of an error, the sole and exclusive responsibility of Alpha Analytical, Inc., shall be to re-perform the work at it's own expense. In no event shall Alpha Analytical, Inc. be held liable for any incidental consequential or special damages, including but not limited to, damages in any way connected with the use of, interpretation of, information or analysis provided by Alpha Analytical, Inc.

We strongly urge our clients to comply with EPA protocol regarding sample volume, preservation, cooling, containers, sampling procedures, holding times and splitting of samples in the field.

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attachment 1

Quality Control Acceptance Criteria

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surrogate spike % recovery	AQL	AQ Limits	Soil	Soil Limits	
	101	NCL	101	UCL	
1,2-Dichloroethane-d4	75%	125%	75%	125%	
4-Bromofluorobenzene	75%	125%	75%	125%	
Toluene-d ₈	75%	125%	75%	125%	
Dibromofluoromethane	75%	125%	75%	125%	
matrix spike / matrix spike duplicate		percent recovery	recovery		duplicate and/or MSD
(MS/MSD) & lab control sample (LCS)	AQL	AQ Limits	Soll	Soil Limits	AQL-Imits Soil I imite
	LCL	UCL	LCL	CCL	RPD RPD
1,1-Dichloroethene	61%	145%	28%	172%	all farget compounds
Trichloroethene	71%	120%	62%	137%	20%
Chlorobenzene	75%	130%	%09	133%	
Benzene	76%	127%	%99	142%	
Toluene	760%	42504	2002	4300/	

Volatile Organics by Method 8021B

TI TOO DOLLAND (C. DOLLAND)					
surrogate spike % recovery	AQL	AQ Limits	Soil	Soil Limits	
	LCL	CCL	LCL	CCL	
4-Bromochlorobenzene	%02	110%	20%	120%	
4-Bromofluorobenzene	20%	110%	20%	120%	
matrix spike / matrix spike duplicate		percent recovery	ecovery		dublicate and/or MSD
(MS/MSD) & lab control sample (LCS)	AGL	AQ Limits	Soil	Soil Limits	AQ Limits Soil limits
	LCL	CCL	TCL	CCL	RPD RPD
1,1-Dichloroethene	%02	130%	%02	130%	all target compounds
Trichloroethene	%02	130%	20%	130%	20% 30%
Chlorobenzene	%02	130%	70%	130%	
Benzene	%02	130%	20%	130%	
Toluene	70%	130%	%02	130%	
Ethylbenzene	%02	130%	%02	130%	

Semi-Volatile Organics by Method 8270C (includes PAHs)

LCL UCL LCL LCL LCL LCL LCL LCL LCL LCS 23% 120% 2 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4	surrogate spike % recovery AQ Limits Soi	AOL	AQ Limits	Soil	Soil I imite	
120% 120%		LCL	CCL	김	CC	
10% 120% 1	Nitrobenzene-d _s	23%	120%	23%	120%	
120% 25% 120% 120% 120% 120% 130% 120% 1	Phenol-d ₆	10%	120%	10%	120%	
120% 120% 120% 120% 120% 120% 120% 120% 180% 120% 180% 120% 180% 180% 120% 180%	2-Fluorophenol	21%	120%	25%	120%	
120% 18% 120% 18% 120% 18% 120% 18% 120% 18% 120% 18% 120% 18% 120% 18% 120% 18% 18% 18% 18% 18% 19% 18% 1	2-Fluorobiphenyl	43%	120%	30%	120%	
ike duplicate sample (LCS) AQ Limits LCL LOL LCL UCL 39% 46% 118% 31% 46% 118% 31% 46% 118% 31% 41% 116% 35% 96% 28% 127% 35% 41% 116% 36% 117% 116% 38% 96% 117% 116% 116% 38% 96% 118% 118% 118% 118% 118% 118% 118% 11	p-Terphenyl-d ₁₄	33%	120%	18%	120%	
Sample (LCS) AQ Limits Soil Limits	2,4,6-Tribromophenol	10%	120%	19%	120%	
sample (LCS) AQ Limits Soil Limits LCL UCL LCL UCL 39% 98% 38% 107% 46% 118% 31% 137% 26% 127% 28% 193% 27% 157% 28% 102% 41% 116% 41% 126% 10% 97% 28% 104% 9% 103% 17% 109% 12% 128 128 90% 23% 97% 26% 103% 10% 80% 14% 14% 10% 80% 143% 143%	matrix spike / matrix spike duplicate		percent r	ecovery		duplicate and/or MSD
LCL UCL LCL UCL 39% 98% 38% 107% 46% 118% 31% 137% 24% 16% 28% 142% 47% 112% 35% 142% 47% 116% 41% 126% 97% 28% 104% 9 103% 17% 109% 12% 110% 26% 90% 27% 28% 103% 10% 80% 11% 144%	(MS/MSD) & lab control sample (LCS)	AQL	imits	Soil L	imits	AQ Limits Soil I imits
39% 98% 38% 107% 46% 118% 31% 137% 24% 96% 28% 89% 26% 127% 35% 142% 41% 116% 41% 126% 36% 97% 28% 103% 112% 110% 26% 90% 23% 97% 26% 102% 10% 80% 11%		LCL	UCL	LCL	NCL	RPD RPD
46% 118% 31% 137% 24% 26% 28% 89% 26% 127% 35% 142% 41% 116% 41% 126% 36% 97% 28% 104% 9% 103% 17% 109% 12% 12% 12% 25% 102% 23% 97% 26% 103% 10% 80% 11% 114%	1,2,4-Trichlorobenzene	39%	%86	38%	107%	all target compounds
24% 96% 28% 89% 26% 26% 127% 35% 142% 143% 143% 103% 103% 103% 27% 103% 27% 103% 25% 102% 23% 97% 26% 103% 10% 80% 11% 114%	Acenaphthene	46%	118%	31%	137%	40% 50%
26% 127% 35% 41% 146% 41% 41% 41% 56% 97% 28% 17% 112% 110% 26% 23% 23% 23% 19% 10% 80% 11% 11%	2,4-Dinitrotoluene	24%	%96	28%	89%	
41% 116% 41% 36% 97% 28% 9% 103% 17% 12% 110% 28% 27% 123% 25% 10% 80% 11% 1	Pyrene	26%	127%	35%	142%	
36% 97% 28% 97% 28% 17% 112% 110% 26% 27% 123% 25% 1 10% 80% 11% 11% 10% 80% 11% 11% 10% 80% 11% 11% 10% 80% 11% 11% 11% 11% 11% 11% 11% 11% 11% 1	N-Nitroso-di-n-propylamine	41%	116%	41%	126%	
9% 103% 17% 12% 17% 26% 22% 123% 25% 23% 97% 26% 11% 10% 80% 11% 11% 11% 11% 11% 11% 11% 11% 11% 1	1,4-Dichlorobenzene	36%	%16	28%	104%	
12% 110% 26% 27% 123% 25% 110% 10% 80% 11% 1	Pentachlorophenol	%6	103%	17%	109%	
27% 123% 25% 1 23% 97% 26% 1 10% 80% 11% 1	Phenol	12%	110%	26%	%06	
23% 97% 26% 1 10% 80% 11% 1	2-Chlorophenol	27%	123%	25%	102%	_
10% 80% 11%	4-Chloro-3-methylphenol	23%	%26	26%	103%	
	4-Nitrophenol	10%	80%	11%	114%	

Alpha Analytical Labs

revised 03/23/2000

PCB/Pesticides by Method 8082/8081

surrogate spike % recovery	AQL	AQ Limits	Soil Limits	imits	
	LCL	J S	LCL	UCL	
2,4,5,6-Tetrachloro-m-xylene	40%	120%	40%	120%	
Decachlorobiphenyl	40%	120%	40%	120%	
matrix spike / matrix spike duplicate		percent recovery	ecovery		duplicate and/or MSD
(MS/MSD) & lab control sample (LCS)	AQL	AQ Limits	Soil Limits	imits	AQ Limits Soil Limits
	LCL	· ncr	LCL.	UCL	RPD RPD
Lindane	26%	* : 423%	46%	127%	· · all target compounds
Heptachlor	40%	131%	35%	130%	30% 20%
Aldrin	40%	120%	34%	132%	
Dieldrin	25%	126%	31%	134%	
Endrin	%99	121%	42%	139%	
4,4'-DDT	38%	127%	23%	134%	
Arodor 1242/1016	40%	140%	40%	140%	
Aroclor 1260	40%	140%	40%	140%	

Volatile Petroleum Hydrocarbons (VPH) by MA DEP 98-1

suitogate spike % recovery	ACL	AC LIMITS	Ros	Soil Limits	
	TOT	NCL	CCL	CCL	
2,5-Dibromotoluene	402	130%	20%	130%	
		percent recovery	ecovery		duplicate
laboratory control sample (LCS)	AQL	AQ Limits	Soil	Soil Limits	AQ Limits Soil Limits
	TOT	UCL.	CC	NCL	RPD RPD
all compounds	20%	130%	%02	130%	20% 20%

Extractable Detroioum Hudi

Extractable Petroleum Hydrocarbons (EPH) by MA DEP 98-1	ns (EPH)	DY MAL	JEP 98-		
surrogate spike % recovery	AQL	AQ Limits	Soil	Soil Limits	
	LCL	CCL	LCL	UCL	
Chloro-octadecane	40%	140%	40%	140%	
ortho-Terphenyl	40%	140%	40%	140%	
2-Fluorobiphenyl (fractionation)	40%	140%	40%	140%	
2-Bromonaphthalene (fractionation)	40%	140%	40%	140%	
		percent recovery	ecovery		duplicate
laboratory control sample (LCS)	AQL	AQ Limits	Soil	Soil Limits	AQ Limits Soil Limits
	LCL	UCL	LCL	TOC NC	RPD RPD
all compounds	40%	140%	40%	140%	50% 50%

TPH (GC-FID) by Method 8100M

surrogate spike % recovery	AQ Limits	mits	Soil Limits	imits	AQ Limits	ts Soil Limits
	LCL	TCL UCL	го То	UCL	RPD RPD	RPD
ortho-Terphenyl	40%	140%	40%	140%	40%	40%

TPH by Method 418.1

natrix spike (Mo)		percent I	recovery		duplicate	icate
a laboratory control sample (LCS)	AQL	AQ Limits	Soil Limits	imits	AQ Limits S	Soil Limits
	LCL	TCT NCT		רכר חכר	RPD RPD	RPD
Hd	%09	140%		140%	40%	40%

attachment 1

Quality Control Acceptance Criteria

Trace Metals by Method 6010B/7000 series

duplicate	AQ Limits Soil I imite	RPD RPD	ı
	Soil Limits	CCL	140%
recovery	Soil	LCL	70%
percent	AQ Limits	UCL	125%
	AQL	LCL	75%
matrix spike (MS)	or laboratory control sample (LCS)		target analyte

Mercury by Method 7470A/7471A

A series	unplicate	AQ Limits Soil Limits	RPD RPD	
		imits	UCL	140%
PCOVPTV		Soil Limits	LC LC	%09
Dercent r		mits	UCL	130%
		AQ Limits	LCL	%02
matrix spike (MS)	0	or laboratory control sample (LCS)		mercury

Total Cyanide by Method 9010B

duplicate	AQ Limits Soil Limits	RPD RPD	
covery	Soil Limits	TON TOT	
percent re	Ad Limits	רכר חכר	80% 120%
Ratrix spike (MS)	a laboratory control sample (LCS)		cyanide

Total Phenol by Method 9065

	nt rec	duplicate AQ Limits Soil Limits RPD RPD
20%	130% 65% 135%	2000

ALPHA Analytical Laboratories, Inc.	CHAIN OF	CUSTODY	ALPHA Job /:
Eight Walkup Drive Westborough, MA 01581	Nº 209	37	Date Rec'd in Lab: Date Due:
PH: 508.898.9220 FAX: 508.898.9193 www.alphalab.com		Sheet of _Q	10/6/00 /10/16
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Client Address: One Cambridge Place	Project Location: Boston Bra	etho Bill To: CDM	(* DAYS)
W) Man Wheele Suland	Project #:	One Cambridge	Place FAX Results State Forms
Phone * Cambridge 1 MA 02 137 + 617 452 8330 Comments (Please note specific method, detection limit or reporting requ	Project Manager: Conol keshi	ck PO#: Combute or	A 00139 Smart Report
4617 452-6330	arements)	ANALYSIS REQUEST	
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. 9	C	Steel Page	Date Date
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All samples submitted are subject to Alpha's standard Terms and Condition			9 1 2 2
See Reverse side for Matrix, Container, and Preservative Container, and Preservat	des. Container Type: *	1 - 1	PPP
Form No.: 01-01	Preservative: • V	1 2 1 2 1 2 W	DWGP C E
ALPHA Analytical Laboratories, Inc. Eight Walkup Drive Westborough, MA 01581	Nº 274	F CUSTODY	ALPHA Job #: One of the control of
Eight Walkup Drive Westborough, MA 01581 PH: 508.898.9220 FAX: 508.898.9193 www.alphalab.com	Nº 274	Sheet _ 2 of _ 2	Date Rec'd in Lab: Date Due:
Eight Walkup Drive Westborough, MA 01581 PH: 508.898.9220 FAX: 508.898.9193 www.alphalab.com Client Name: CM - Carol Keshick	Nº 274 Project Name: Mudels Ru	Sheet Z of Z Sheet Z of Z Report To: CDM - Co	Date Rec'd in Lab: Date Due:
Eight Walkup Drive Westborough, MA 01581 PH: 508.898.9220 FAX: 508.898.9193 www.alphalab.com Client Name: CDM - Canol Keshick Client Address: One Cambridg Phee	Project Name: Mudel Ou Project Location: Boston & Co	Sheet 2 of 2 We Report To: CDM - Co	Date Rec'd in Lab: Date Due: 0 6 00 Maintain Maintain
Eight Walkup Drive Westborough, MA 01581 PH: 508.898.9220 FAX: 508.898.9193 www.alphalab.com Client Name: CDM - Garol Keshick Client Address: One Camboride Place So Harngshue, SH	Project Name: Mudely Ou Project Location: Boston & Co Project #: 20300	Sheet Z of Z Wen Report To: CDM - Co Steve Bill To: CDM One Cambrid	Date Rec'd in Lab: Date Due. 0 6 00 Maintand TAT RUSH TAT RUSH TAT FAX Results
Eight Walkup Drive Westborough, MA 01581 PH: 508.898.9220 FAX: 508.898.9193 www.alphalab.com Client Name: CDM - Gard Kestick Client Address: One Cambride Phase So Harroshue St. Phone *: Combride MA 01581	Project Name: Mudel. Co Project Location: Boston & Co Project *: 20300 Project Manager: Comol (e.g.)	Sheet Z of Z Wen Report To: CDM - Co Steve Bill To: CDM One Cambrid	Date Rec'd in Lab: Date Due. 0 6 00 Maintand TAT RUSH TAT RUSH TAT FAX Results
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Eight Walkup Drive Westborough, MA 01581 PH: 508.898.9220 FAX: 508.898.9193 www.alphalab.com Client Name: CDM - Cavol Keshick Client Address: One Cambridg Pipel So Hampshue H Phone * Combruly 1997 Office 16/7 452.8330 Comments (Plase note specific method, detection limit or reporting required by 17 452.6330 AIPHA Iab * Sample ID 9007 13 Poston Guta Husse 5w	Project Name: Mudel. Que Project Location: Dos ton & Co Project Manager: CMO Co D Project Manager: CMO C	Sheet Z of Z We Report To: CDM - Co Stelle Bill To: CDM One Cambride ANALYSIS REQUEST ANALYSIS RE	Date Rec'd in Lab: 0 6 00 Modick Standard TAT RUSH TAT PAX Results State Forms State Forms Smart Report State Forms Smart Report Smart Re
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Eight Walkup Drive Westborough, MA 01581 PH: 508.898.9220 FAX: 508.898.9193 www.alphalab.com Client Name: CDM - Gard Kestick Client Address: One Cambridge Place So Havnoshue St. Phone Dombruy 1774 0723 617 4528330 Comments (Plase note specific method, detection limit or reporting req 1017 452 6330 ALPHA Labe Sample ID 900113 Boston Gata Huse Sw 13 Mills Rivers Apissis Ball 4 Fps	Project Name: Mudel. Que Project Location: Dos ton & Co Project Manager: CMO Co D Project Manager: CMO C	Sheet Z of Z We Report To: CDM - Co Stelle Bill To: CDM One Cambride ANALYSIS REQUEST ANALYSIS RE	Date Rec'd in Lab: O O O O O O O O
Eight Walkup Drive Westborough, MA 01581 PH: 508.898.9220 FAX: 508.898.9193 www.alphalab.com Client Name: CDM - Gard Keshick Client Address: One Cambridg Place So Harnoshie SH Phone *: Combrid MA 073.3 6/2 4528.330 Comments (Plase note specific method, detection limit or reporting required by 17 452 6330 AIPHA Tab ** Sample ID 900 12 Briston Gata Harse Sw 13 Mills Rivers April Bris River 14 Tps	Project Name: Mudel. Que Project Location: Dos ton & Co Project Manager: CMO Co D Project Manager: CMO C	Sheet Z of Z We Report To: CDM - Co Stelle Bill To: CDM One Cambride ANALYSIS REQUEST ANALYSIS RE	Date Rec'd in Lab: O O O O O O O O
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ALPHA ANALYTICAL LABORATORIES

Eight Walkup Drive Westborough, Massachusette 01581-1019 (508) 898-9220

MA:M-MA-086 NH:200395-B/C CT:PH-0574 ME:MA086 RI:65 NY:11148

CERTIFICATE OF ANALYSIS

Laboratory Job Number: L0008881 Date Received: 04-0CT-00 Date Reported: 13-0CT-00 Delivery Method: Client Invoice Number: 42342 Camp Dresser & McKee, Inc. 50 Hampshire Street Cambridge, MA 02139 Address: 1 Cambridge Place Bruce Conklin Project Numbers 20309 MUDDY RIVER Client: Attai Site

SAMPLE LOCATION	BOSTON/BROOKLINE	BOSTON/BROOKLINE	BOSTON/BROOKLINE	BOSTON/BROOKLINE	BOSTON/BROOKLINE	BOSTON/BROOKLINE	BOSTON/BROOKLINE	BOSTON/BROOKLINE	BOSTON/BROOKLINE	BOSTON/BROOKLINE	BOSTON/BROOKLINE	BOSTON/BROOKLINE
CLIENT IDENTIFICATION	BOSTON GATE HOUSE	AGASSIZ ROAD BRIDGE	IPSWICH STREET	MUDDY RIVER @ BACK BAY YARD	MUDDY RIVER @ LONGWOOD AVE	LONGWOOD AVENUE DRAIN	TANNERY BROOK DRAIN	VILLAGE BROOK DRAIN	DAISY FIELD DRAIN	WILLOW POND OUTLET	MUDDY RIVER @ WILLOW POND RD	HUNTINGTON AVE
ALPHA SAMPLE NUMBER	L0008881-01	L0008881-02	L0008881-03	L0008881-04	T0008881-02	L0008881-06	L0008881-07	L0008881-08	L0008881-09	T0008881-10	L0008881-11	L0008881-12

I attest under the pains and penalties of perjury that, based upon my inquiry of those individuals immediately responsible for obtaining the information, the material contained in this report is, to the best of my knowledge and belief, accurate and complete. This certificate of analysis is not complete unless this page accompanies any and all pages of this people to the page of this pages.

Authorized by: 100

Scott McLean - Laboratory Director

Page 1 of 18 10130007:48

ALPHA ANALYTICAL LABORATORIES CERTIFICATE OF ANALYBIS

MA:M-MA-086 NH:200395-B/C CT:PH-0574 NE:MA086 RI:65

Date Collected: 04-OCT-2000 Date Reserved: 04-OCT-2000 Date Reported: 13-OCT-00	Field Frep: None	
L0008881-01 BOSTON GATE HOUSE WATER	Satisfactory	e: 2-Bacteria.3-Plastic
Laboratory Sample Number: L0008881-01 BOSTON GATE Sample Matrix: MATER	Condition of Sample:	Number & Type of Containers: 2-Bacteria.3-plastic

PARAMETER	RESULT	STINO	RDL	REP	REF METHOD	DATES
						SIBXT
Turbidity	й И	NTO	0.20	30	2130B	04-0ct R3
Color, True	B	A.P.C.U.	0.0	30	21208	04-Oct Rg
Color, Apparent	23.	A.P.C.U.	8.0	90	21208	04-Oct RS
Acidity	ě	mg CaCO3/12.0	/L2.0	30	2310B	11-0ct RS
Alkalinity, Total	in m	mg CaCO3/L2.0	72.0	30	2320B	10-Oct RS
Solids, Total Suspended	60 60	mg/1	5.0	30	25400	05-Oct DT
Mitrogen, Ammonia	Q.	mg/1	0.075	30	4500NH3-BH	12-0ct DE
Mitrogen, Mitrate/Mitrite	0.47	mg/l	0.10	30	4500M03-F	04-Oct DD
Phosphorus, Total	\$0.0	mg/1	10.0	0 E	4500P-E	10-0at JT
Phosphorus, Orthophosphate	QV QV	mg/1	0.01	30	4500P-E	05-0at JT
Coliform, Fecal (MPN)	300	MRN/100ml 2.0	2.0	30	9221E	04-Oct AB
Coliform, Pecal Strep (MPN)	30.	MPN/100ml 2.0	2.0	30	92308	04-Oct AB

Comments: Complete list of References and Glossary of Terms found in Addendum I Page 2 of 18 10130007:48

MA:M-MA-086 NH:100395-B/C CT:PH-0574 NE:MA086 RI:65

PARAMETER	RESULT	UNITS	ror .	REP	METHOD	DATES ID PREP ANALYBIS
Turbidity	e .	NTO	0.20	30	21308	04-Oct RS
Color, True	. 89	A.P.C.U.	0.0	30	21208	04-0at RS
Color, Apparent	27.	A.P.C.U.	5.0	30	21208	04-0ct RS
Acidity	Ğ	mg CaCO3/12.0	/1.2.0	30	2310B	11-0ct RS
Alkalinity, Total	33.	mg CaCO3/12.0	/1.2.0	30	2320B	10-0ct RS
Solids, Total Suspended	20,	mg/1	ъ. 0	90	2540D	05-0ct DT
Nitrogen, Ammonia	Q.	mg/1	0.075	30	4500NH3-BH	12-Oct DB
Nitrogen, Nitrate/Nitrite	0.32	mg/1	0.10	0 10	4500NO3-F	04-0ct DD
Phosphorus, Total	0.05	mg/1	10.0	30	4500P-B	10-0ct JT
Phosphorus, Orthophosphate	Q.	mg/1	10.0	0 19	4500P~E	05-0ct JT
Coliform, Fecal (MPN)	200	MPN/100ml 2.0	1 2.0	30	9221E	04-Oct AB
Coliform, Fecal Strep (MPN)	H	MPN/100ml 2.0	1 2.0	30	92308	04-Oct AB

Comments: Complete list of References and Glossery of Terms found in Addendum I

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ALPHA ANALYTICAL LABORATORIES CERTIFICATE OF ANALYSIS

MA:M-MA-086 NH:200395-B/C CT:PH-0674 ME:MA086 RI:65

Date Collected: 04-0CT-2000 Date Received : 04-0CT-2000 Date Reported : 13-0CT-00	Field Prep: None	
LOOOBBB1-03 IPSWICH STREET WATER	Satisfactory	ra: 1-Plastic
Laboratory Sample Number: L0008881-03 Sample Matrix: WATER	Condition of Sample:	Number & Type of Containers: 1-Flasti

A	10 W
ALYSIS	12-0at
DATES PREF AMALYSIS	10-Oct 12-Oct RW
REF METROD	60108
	1
ADI.	0.05
KASSULT UNITE RDI	mg/1
¥	QN
KASS TOTAL LEK	Lead, Total

MA:M-MA-086 NH:200395-B/C CT:PH-0574 ME:MA086 NI:65

Laboratory Sample Number: L0008881-04 Gumple Matrix: WATER	L0008881-04 MODDY RIVER @ BACK BAY YARD WATER	Date Collected: 04-OCT-2000 Date Received : 04-OCT-2000 Date Reported : 13-OCT-00
Condition of Sample:	Satisfactory	Field Prep: None
Number & Type of Containers: 1-Plastic	ra: 1-Plastic	

		A CONTRACTOR OF THE CONTRACTOR	Control (manufactor), post property of the control		3015	The state of the s
Lead, Total M	e e	mg/1	0.05	н	6010B	10-Oct 12-Oct RW

Comments: Complete list of References and Glossary of Terms found in Addendum I

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ALPHA ANALYTICAL LABORATORING CERTIFICATE OF ANALYSIS

MA:M-MA-086 NH:200395-B/C CT:PH-0574 ME:MA086 RI:65

Date Callected: 04-OCT-2000 ONGWOOD AVE Date Received: 04-OCT-2000 Date Reported: 13-OCT-00	Field Prep: None
LOOOGBB1-05 MUDDY.RIVER @ LONGWOOD AVE WATER	Satisfactory
Laboratory Sample Number: 10008881-05 NUDDY.RIVER Sample Matrix: WATER	Condition of Sample:

Parameter	RESULT	UNITE	RDL	REF	REF METHOD	DATES ID PREF ANALYSIS
Turbidity	ο. 	NTO	0.20	30	2130B	04-0ct RS
Color, True	17.	A.P.C.U.	5.0	30	21208	04-Oct RS
Color, Apparent	18.	A.P.C.U.	ο· ιπ	30	2120B	04-Oct RS
Acidity	ě	mg CaCO3/12.0	12.0	30	2310B	11-0cc RS
Alkalinity, Total	44.	mg CaCO3/L2.0	L2.0	30	23208	10-Oct RS
Solids, Total Suspanded	Q _N	T/Sm	5.0	30	2540D	05-oct DT
Mitrogen, Ammonia	0.519	1/541	0.075	30	4500NH3-BH	12-0ct DE
Nitrogen, Nitrate/Nitrite	.4.	тg/1	0.10	30	4500NO3-F	04-Oct DD
Phosphorus, Total	0.11	mg/1	0.01	0	4500P-B	10-Oct JT
Phosphorus, Orthophosphate	0.02	mg/1	0.01	30	4500P-R	05-0ct JT
Coliform, Fecal (MPN)	Đ.	MPN/100ml 2.0	2.0	30	9221B	04-Oct AB
Coliform, Fecal Strep (MPN)	Ð	MPN/100ml 2.0	2.0	30	9230B	04-Oct AB

MA:M-MA-086 NH:200395-B/C CT:PE-0574 ME:MA086 RI:65

T-2000 T-2000 T-00		٠
1: 04-0C : 04-0C : 13-0C	None	
Date Collected: 04-OCT-2000 Date Received: 04-OCT-2000 Date Reported: 13-OCT-00	Field Prepe	
LOCOSSSI-OG LONGWOOD AVENUE DRAIN WAITER	Satisfactory	s: 2-Bacteria, 3-Plastic
Leboratory Sample Number: LO008881-06 Sample Matrix: WATER	Condition of Samples	Number & Type of Containers: 2-Bacteria, 3-Plastic

Parameter	REBULT	UNITS	RDL	REF	METHOD	DATES ID	
Turbiddey	ហ្	DIL	0.20	Ф Ю.	2130B	04-0ct RS	
Color, True	18.	A.P.C.U.	ы. О	30	2120B	04-Oct RS	
Color, Apparent	22 .	A.P.C.U.	n. 0	64	21208	04-Oct RS	
Acidity	CE	mg CaCO3/L2.0	/L2.0	30	2310B	11-0ct RS	
Alkalinity, Total	. 8	те сасоз/12.0	72.0	30	2320B	10-Oct RS	
Solids, Total Suspended	Ω .4	mg/1	0.0	30	2540D	05-Oct DI	
Nitrogen, Ammonia	0.576	mg/l	0.075	30	4500NH3-BH	12-0dt DE	
Nitrogen, Nitrate/Nitrite	1.0	mg/1	0.10	30	4500NO3-F	04-Oct DD	
Phosphorus, Total	0.14	mg/1	0.01	0 m	4500P-E	10-0ct JT	
Phosphorus, Orthophosphate	0.03	mg/1	0.01	30	4500P-E	05-Oct JT	
Coliform, Fecal (MPN)	2.0	MFN/100ml	2.0	30	9221E	04-Oct AB	
Coliform, Fecal Strep (MPN)	2.0	MPN/100ml 3.0	0	30	9230B	04-Oct AB	

Comments: Complete list of References and Glossary of Terms found in Addendum I

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ALPHA ANALYTICAL LABORATORIES CERTIFICATE OF ANALYSIS

MA:M-MA-086 NH:200395-B/C CT:PH-0574 ME:MA086 RI:65

Date Collected: 04-0CT-2000 Date Received : 04-0CT-2000 Date Reported : 13-0CT-00	Field Frep: None		
LOGOBBB1-07 TANNERY BROOK DRAIN WATER	Satisfactory	s: 2-Bacteria, 3-Plastic	
Laboratory Sample Number: L0008881-07 FANNERY BROC Sample Matrix:	Condition of Sample:	Number & Type of Containers; 2-Bacteria, 3-Plastic	

Parameter	REBULT	UNITS	יי	REF	Матнор	DATES ID
Turbidity	6) 0)	DIN	0.20	90	2130B	04-Oct RS
Color, True	12.	A.P.C.U.	5.0	30	2120B	04-Oct RS
Color, Apparent	63.	A.P.C.U.	25,	30	21208	04-Oct RS
Acidity	Q.	mg CaCO3/L2.0	/12.0	30	23108	11-0at RS
Alkalinity, Total	62.	" mg CaCO3/12.0	/12.0	30	2320B	10-0ct RS
Solids, Total Suspended	21.	mg/1	0.0	30	30 · 2540D	05-Oct DT
Nitrogen, Ammonia	0.622	mg/1	0.075	30	4500NH3-BH	12-0ct DB
Nitrogen, Nitrate/Nitrite	1.7	mg/1	0.10	0 m	4500NO3-F	04-0ct DD
Phosphorus, Total	0.45	mg/1	0.01	90	45002-區	10-0ct JT
Phosphorus, Orthophosphate	0.02	mg/1	0.01	30	4500P-E	05-Oct JT
Coliform, Pecal (MPN)	500	MPN/100ml 2.0	2.0	0	9221E	04-Oct AB
Coliform, Fecal Strep (MFN)	.08	MPN/100ml 2.0	2.0	0 10	9230B	04-oct AB

MA:M-MA.086 NH:200395-B/C CT:FH-0574 MB:MA086 RI:65

Laboratory Gample Number: L0008861-08 VILLAGE BROK Sample Matrix:	L0008881-06 VILLAGE BROOK DRAIN WATER	DRAIN	888	te Re	Date Collected: 04-0CT-2000 Date Received: 04-0CT-2000 Date Reported: 13-0CT-00	CT-2000 CT-2000 CT-00	
Condition of Sample:	Satisfactory		Tig.	Field Prepi	.ep: None		
Number & Type of Containers: 2-Bacteria,3-Plastic	rs: 2-Bacteria	,3-Plastic	# 1				
Parameter	REBULT	STIMO	RDL	REF	METHOD	DATES ID	
Turbidity	ed e m	DIM	0.20	30	2130B	04-0ct RS.	
Color, True	12.	A.P.C.U.	5.0	30	2120B	04-Oct RS	
Color, Apparent	9 1	A.P.C.U.	0.	30	2120B	04-0ct RS	
Acidity	CIN	mg CaCO3/L2.0	712.0	30	23108	11-0ct RS	
Alkalinity, Total	39,	mg CaCO3/L2.0	/12.0	r) O	2320B	10-Oct RS	
Solids, Total Suspended	5.4	mg/1	N)	30	2540D	05-Oct DT	
Nitrogen, Amaonia	0.597	mg/1	0.075	30	4500NH3-BH	12-0ct DB	
Nitrogen, Nitrate/Nitrite	0.29	mg/1	0.10	30	4500NO3-F	04-Oct DD	
Phosphorus, Total	0.12	mg/l	0.01	30	4500P-E	10-0ct JT	
Phosphorus, Orthophosphate	0.05	mg/1	0.01	30	45002-室	05-oct JT	
Coliform, Fecal (MPN)	ě	MPN/100ml	2.0	3.0	92212	04~Oct AB	
Coliform, Fecal Strep (MPN)	ę,	MPN/100ml 2.0	2.0	90	9230B	04-Oct AB	

Comments: Complete list of References and Glossary of Terms found in Addendum I

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ALPEA ANALYTICAL LABORATORIES CERTIFICATE OF ANALYSIS

MA:M-MA-086 NH:200395-B/C CT:PH-0574 ME:MA086 RI:65

	Laboratory Sample Number: 10008881-09	: L0008881-09		ñ	te Col		04-OCT-2000
	Sample Matrix:	DAISY FIELD DRAIN WATER	DRAIN	ÄÄ	Date Rec	Date Received : 04-0	04-0CT-2000 13-0CT-00
	Condition of Sample:	Satisfactory		¥	Field Prepr	ep: None	
	Number & Type of Containers: 2-Bacteria,3-Plastic	ers: 2-Bacteri	1,3-Plastic				
	Parameter	RESULT	UNITE	RDL	REF	MBTHOD	DATES ID
	Turbidity	2. Li.	DEN	0.20	30	2130B	04-Oct RS
	Color, True	о· 8	A.P.C.U.	o.	30	2120B	04-Oct RB
	Color, Apparent	18.	A.P.C.U.	0.0	30	21208	04-Oct RS
	Acidity	Q	mg CaCO3/L2.0	0	30	23108	11-Oct RS
	Alkalinity, Total	65.	mg CaCO3/L2.0	0	30	23208	10-0ct RS
	Solids, Total Suspended	e m	s 1/5m	S. 0	30	25400	05-0ct DI
	Mitrogen, Ammonia	0.157	mg/1 0	0.075	30	4500NH3-BH	12-Out DE
	Nitrogen, Nitrate/Nitrite	en M	mg/1 0	0.10	30	4500NO3-F	04-oct pp
-	Phosphorus, Total	0.23	mg/1 0	0.01	30	4500P-E	10-0ct JT
	Phosphorus, Orthophosphate	0.02	mg/1 0	0.01	O E	4500P-E	05-Oct JT
	Coliform, Fecal (MPN)	300	MPN/100ml 2	2.0	30	9221B	04-Oct AB
	Coliform, Fecal Strep (MPN)	300 (F	MPN/100ml 2.0	0	30	9230B	04-Oct AB

MA:M-MA-086 NH:200395-B/C CT:PH-0574 MB:MA086 RI:65

Date Collected; 04-0CT-2000 Date Received : 04-0CT-2000 Date Reported : 13-0CT-00 Field Prepr Leberatory Sample Number: L0008681-10
WILLOW POND OUTLET WATER Satisfactory Number & Type of Containers: 1-Flastic Condition of Sample:

			Secretary of the secret	A Company	3015	2102	ı
Lead, Total	Q	mg/1	0.05	H	6010B	10-0ct 12-0ct RW	M

Comments: Complete list of References and Glossary of Terms found in Addendum I

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ALPHA ANALYTICAL LABORATORIES CERTIFICATE OF ANALYSIS

MA:M-MA-086 NH:200395-B/C CT:PH-0574 ME:MA086 RI:65

Laboratory Sample Number: L0008881-11 MUDDY RIVER Sample Matrix: WATER	: L0008881-11 Date Collected: 04-OCT-2000 MUDDY RIVER @ WILLOW POND RD Date Received : 04-OCT-2000 WATER Date Reported : 13-OCT-00	LLOW POND	8	a g a tro	Collected: Received: Reported:	Date Collected: 04-0CT-2000) Date Redelved : 04-0CT-2000 Date Reported : 13-0CT-00	
Condition of Sample:	Satisfactory		Pe	ield	Field Prep:	None	
Number & Type of Containers: 2-Bacteria, 3-Plastic	ers: 2-Bacteria,3-1	Plastio					

PARAMETER	RESULT	UNITS	RDL	REF	метнор	DATES ID
Tuzbidity	ហ	NTO	0.20	0 10	21308	04-0ct RS
Color, True	12.	A.P.C.U.	ŭ. 0	30	2120B	04-Oct RS
Color, Apparent	e e e	A.P.C.U.	ر 0 .	30	21208	04-Oat RS
Acidity	QN QN	mg CaCO3/L2.0	L2.0	DE.	23108	11-0ct RS
Alkalinity, Total	27.	mg CaCO3/L2.0	L2.0	30	2320B	10-oct RS
Solide, Total Suspended	9-6	mg/1	0	30	2540D	05-Oct DT
Nitrogen, Ammonia	S S	mg/1	0.075	30	4500NH3-BH	12-00t DE
Nitrogen, Nitrate/Nitrite	0.26	mg/1	0.10	90	4500NO3-F	04-Oct DD
Phosphorus, Total	0.02	mg/l	0.01	30	4500P-E	10-0ct JT
Phosphorus, Orthophosphate	S C	mg/l	0.01	30	4500P-X	120-20
Coliform, Fecal (MFN)	23.	MPN/100ml 2.0	2.0	30	92218	04-Oct AB
Coliform, Fedal Strep (MPN)	240	MFN/100ml 2.0	2.0	90	9230B	04-Oct AB

Comments: Complete list of References and Glossary of Terms found in Addendum I Page 12 of 18 10130007,48

MB: MA: 65 RI:65 MA:M-MA-086 NH:200395-B/C CT:PH-0574

Sample Matrix:	HUNTINGTON AVE	Date Reported : 04-0CT-2000 Date Reported : 13-0CT-00	04-OCT-2000 13-OCT-00
Condition of Sample:	Satisfactory	Field Prep:	None
pe of Container	Number & Type of Containers: 2-Bacteria, 3-Plastic		

DATES	PREP ANALYSIS	
METHOD		
RBF		
RDL	**	
UNITS		
RESULT		
PARAMETER		

COLOX. TOPSTON FOR SANDIE 61.01.02.05.09.13.12.12.12.000.6881.12. WGGG629.

Color, Apparent

Nitrogen, Ammonia ND ND ND ND ND ND NC NC mg/l

Nitrogen, Nitrate/Nitrite of samplets, or 02,02-44/12/12/120008881-01-766559617

Phosphorus, Total worksitzer total Phosphorus, Total mg/l

Phosphorus, Orthophosphate Cot eshipter of 02.02, 05.05 2 mg/l

Turbidity North The State of S

Units

RPD

Value 2

Value 1

Parameter

Laboratory Job Number: L0008881

ALPHA ANALYTICAL LABORATORIES OUALITY ASSURANCE BATCH DUPLICATE ANALYSIS

Color, True A.P.C.U.

A.P.C.U.

PARAMETER	RESULT	UNITS	ZDZ.	RBF	METHOD	DATES ID
Turbidity	4,	DIN	0.20	30	21308	04-Oct RS
Color, True	18.	A.P.C.U.	5.0	30	21208	04-Oct RS
Color, Apparent	17.	A.P.C.U.	5,0	30	21208	04-Oct RS
Acidity	2	mg CaCO3/12.0	12.0	30	2310B	11-Oct RS
Alkalinity, Total	43.	mg CaCO3/L2.0	L2.0	30	23208	10-0ct %S
Solids, Total Suspended	ę,	mg/1	5.0	30	25400	05-Oct DI
Nitrogen, Ammonia	0.759	т9/1	0.075	30	4500NH3-BH	12-Oct DE
Nitrogen, Nitrate/Nitrite	0.32	mg/1	0.10	30	4500NO3~F	04-0ct DD
Phosphorus, Total	0.14	mg/1	0.01	30	4500P-E	10-0ct JT
Phosphorus, Orthophosphate	50.0	тв/1	0.01	30	4500P-B	05-0ct JT
Coliform, Fecal (MFN)	8	MPN/100ml 2.0	2.0	30	9221E	04-Oct AB
Coliform, Fedal Strep (MFN)	QN CN	MPN/100ml 2.0	2.0	30	9230B	04-Oct AB

Comments: Complete list of References and Glossary of Terms found in Addendum I

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ALPHA AMALYTICAL LABORATORIES QUALITY ASSURANCE BATCH SPIRE ANALYSES

ALPHA ANALYTICAL LABORATORIES OUALITY ASSURANCE BATCH BLANK ANALYSIS

Laboratory Job Number: L0008881

Laboratory Job Number: 10008881

* Recovery

Parameter

ANAZINICY Total Jose Toraspected of Anti-Talkes 69191-

Nilkogen; Jamobika ids. for sample tak de tozob 10 il. 12 (WG6860) - mer tak

Will rogen and trate / Mittite Tas Kor Sample (s): 00.03, 05.03, 11.12 (NG66526)

Nitrogen, Nitrate/Nitrite

Phosphorus, Total

Nitrogen, Ammonia

Alkalinity, Total

PARAMETER .	resort	TALLE	RDL	REF	метнор	DATES PREP ANALYSIS
Turbidity ND NIGHT NO NEW NO NEW 30 2130B	ND Considering	NTU	2.035.09.2	30	2130B	04-0ct
Acidity Bfank analysis for sample se 31.02.06 09.04.12.1	ND NO	ne CacO3/L2.0	2.05-09-d	30	2310B	11-00€
Alkalinity, Total ND mg CaCO3/L2.0 30 2320B 10-Oct	MD COT	ofe(s) gy=0 mg Caco3/	2.05.09.11 L2.0	30	1320B	10-000
Golids, Total Suspended ND mg/l 5.0 30 2540D 05-Odt	ND	Ae(e) oled	5.0	30	1540D	05-Oat
Nitrogen, Ammonia ND ND mg/1 0.075 30 4500NB3-BR	ND COT SAME	mg/l	2,05-0953	30	4500NH3-BH	11-oct DB
Nitrogen, Ammonia ND ND mg/l 0.075 30 4500M3-BH 12-Oct	ND ND	Telescon	0.075	30	1500NH3-BH	12-0c
Nitrogen, Nitrate/Nitrite ND mg/L 0.10 30 4500N03-F 04-Oct	ND ND	mg/l	2.10 0.10	30	1500NO3-F	04-0ct
Phosphorus, Total ND mg/l 0.01 30 4500P-E 10-Oct	ND KOK HAIM	ng/1	2.05-09/8	30	1500P-E	10-0ct
Phosphorus, Orthophosphate ND mg/l 0.01 30 4500P-E 05-Oct	ND ND	ng/l	0.01	30	E00P-E	05-00
Coliforn, Fecal (WPN) ND NEW/100ml 2.0 30 9221E 04-Oct	ND ND	HEN/100ml 2.0	2.0	30	9221E	04-Oct
CONTROL OF THE PARTY CONTROL OF THE	P For Same	018(8)-01-0	2,05.09,2	15.12 15.12		

-Alkalinty; Total Briks for sampleden of Orozoskos, districted Chessifor (Mossos) Alkalinty, Total

Attrogen, Ammonia, Brukk ing samplate, 1912.02.05.05.14.12.(10.09866-5); 196668681. Nitrogen, Ammonia Nitrogen, Amponia

of main notal Netale LGS for sample rate 03.50f; TU-ING 69.955.

Phosphorus, Orthophosphate 105 for pample felt of 02 05 99 11 12 2 Addaed 12 10 10 Phosphorus, Orthophosphate

PHOSPHOSPHS TIONAL SON TON SAME (# 170, 02 144,08, 11-12; (W665934)

Phosphorus, Total

Nitrogen, Nitrate/Nitrite

Phosphorius Orthonbosphate SETING for Bandlers | DIEDZ OS 09:11-12 (L0008881-02) WGGGGG71

99

Phosphorus, Orthophosphate

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ALPHA ANALTTICAL LABORATORIES QUALITY ASGURANCE BATCH BLANK ANALYSIS

Laboratory Job Number: L0008881

PARAMETER

Continued

PREP ANALYSIS	31 £ f £ f 70 5 .04 .20	10-0ct 12-0ct RW
		6010B
)	+1
	1.03.04.1	0.05
	Baam	I/Sm
	naly#	ON
	Tolal Metals and a stank anal	Lead, Total

DIST.

STIME

ALPHA ANALYTICAL LABORATORIES ADDENDUM I

REFERENCES

- Physical/Chemical Methods. EPA SW-Test Methods for Evaluating Solid Waste: 846. Update III, 1997. 7
- 30. Standard Methods for the Examination of Water and Mastewater. APHA-ANWA-WPCF.

GLOSSARY OF TERMS AND SYMBOLS

Reference number in which test method may be found. REF

METHOD Method number by which analysis was performed.

Initials of the analyst.

П

LIMITATION OF LIABILITIES

Alpha Analytical, inc. performs services with reasonable care and diligence normal to the analytical testing laboratory industry. In the event of an error, the sole and exclusive reaponsibility of Alpha Analytical, Inc., shall be to re-perform the work at 16's own expense. In no event shall higha Analytical, Inc., be held liable for any incidental consequential or special damages, including but not limited to, damages in any way connected with the use of, interpretation of, information or analysis provided by Alpha Analytical, Inc.

We strongly urge our clients to domply with EPA protocol regarding sample volume, preservation, cooling, containers, sampling procedures, holding times and splitting of samples in the field.

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ALPHA Analytical Laboratories, Inc.		CHAIN	OF C	UST	ODY			i, (i)	Z.V.	1 19 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
Eight Walkup Drive Westborough, MA 01581		Nº :	2748				Date	Rec'd in Lat	: 188	ji - 1 - 2
PH: 508.898.9220 FAX: 508.898.9193 www.alphalab.com	1				Sheet	of	10	- p4- oc		16 19
Client Name: CDM -COLOR Keslick	Project Name	muddy	River	Repo	TOOT n	*4-C	ual kes	in the		ndard TAT
Client Address: One Combridge Place	Project Locat		Brook	BIII T	o: CD	M	~	45		(# DAYS)
60 Hampshire Street	Project #: 0		1		no Co	mocia	- ellos S	7		Results te Forms
Phone *: 617 452 6188 1 FAX *: 617 452 8330	Project Mana	ger.Conole	Keslick					· .÷		art Report
Comments (Please note specific method, detection limit or reporting re 2617 453 6330 4617 452 833	outrements)	21:12		7	ANALYSI	S REQU	EST E	1		
701745 8 2000	- Caronell	comed)	La .	oded Seils	Sent (20)0x		us/ortho	en Nitrata	ă -	5491 001110
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All samples submitted are subject to Alpha's standard Terms and Condition	ons. # of (Containers:	8,2	18	88	96	88	83	1	3
* See Reverse side for Matrix, Container, and Preservative C	odes. Conta	iner Type: *	BB	P	PP	P	PP	PP	Stern	
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ALPHA Analytical Laboratorles, Inc. Eight Walkup Drive Westborough, MA 01581 PH: 508.898.9220 FAX: 508.898.9193 www.alpl			(CHL Nº	AJN 2	OF 212:		ST			_ of _			ec'd in Lal		
Client Name: CDM		•	t Name:					Repo	ort To:							Standard TAT
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Sample ID	Matrix/Source *	Sampling Date	Sampling Time	Sampler's Initials	Solubles: Field Filtered (Y/N)	E. CO1.	F. Stre	7-55	Truetho	7476	7116	Acidirty	TPhoslo	1. Ph	Bys	
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